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FACTORS INFLUENCING INFORMAL CROSS-BORDER KNOWLEDGE
SHARING VIA ENTERPRISE SOCIAL SOFTWARE

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ABSTRACT

Knowledge sharing is an essential activity for achieving a sustainable competitive advantage in today's multinational companies (MNCs). The difficulty for an MNC's geographically and functionally dispersed knowledge workers to informally share their knowledge across borders gives rise to enterprise social software platforms (ESSPs) and their tools to facilitate the sharing activity. In light of knowledge worker reluctance to contribute to these tools, this research analyzes determinants of an ESSP's tools adoption and usage behaviour.

This research addresses one main research question with three sub-questions. The main question investigates the factors that influence a knowledge worker's willingness and contributions to informal cross-border knowledge sharing via an ESSP's tools. The sub-questions explore a knowledge worker's attitude, behavioural intention, and behavioural usage, through identifying motivational drivers and inhibiting barriers.

Exploratory qualitative research was employed within this empirical study to answer the research questions through conducting nine semi-structured interviews. All interviewees were knowledge workers within one case company which provided an ESSP with the following tools exhibiting varying usage: user profiles, a wiki, and a discussion board.

Content analysis of the data was structured around the theory of planned behaviour, the unified theory of the acceptance and use of technology, and social relationship theories. This resulted in the development of an integrative framework which illuminated the interrelated influence of individual, technological, and social factors resulting in a knowledge worker's adoption and behavioural usage of an organization's ESSP's tools for informally sharing their knowledge across borders. In addition to individual attitudinal determinants, behavioural intention was found to be influenced primarily by the existence of technological motivational drivers in the form of perceived valued outcomes and inhibiting barriers embodied by one's perceived effort. These were moderated by social factors related to one's perceived social influence for each tool and the perceived support from the contextual organizational environment.

KEYWORDS: Knowledge Sharing, Enterprise Social Software Platform, Social Software Tools, Theory of Planned Behaviour, Social Capital Theory, Technology Adoption

1 INTRODUCTION

This section presents the background of the study, identifies the research problem, develops the research questions based on the purpose of the study, establishes the study scope, and outlines the structure of the Master's thesis.

1.1 Background of the Study

Since the days of the great philosophers Plato and Aristotle, humans have sought to acquire a deeper understanding of “knowledge” and the role that it plays in the world in which we live. It has also been argued that humans are social creatures and as such, the majority of great innovations and efficiencies are derived from the desire to bring individuals closer together within society. Ever since man harnessed fire, philosophically associated with representing technology, there has been a yearning to maximize the potential of the most cutting edge technological advancements. The combination of man's quest for knowledge, inherent need to be social, and the desire to leverage leading technology has resulted in today's proliferation of social software bringing people together across previously unfathomable distances to informally share their knowledge across borders. In multinational corporation's (MNC's), this has lead to the desire to share local knowledge globally throughout the firm to achieve the benefits of worldwide learning (Peng 2009). Organizational design challenges in managing the flow of knowledge across the geographically dispersed MNC has culminated in today's focus on utilizing social technologies to facilitate the knowledge sharing activity.

The overarching goal of all firms is to thrive in the highly dynamic international business environment through leveraging core competencies into a sustainable competitive advantage (Peng 2009). In the last two decades, this has resulted in the evolution of two streams of organizational theory: social-based theories and the field of knowledge management (KM). These concepts have influenced the ways in which academics and managers perceive social interactions and knowledge within the confines of internal organizational boundaries. In particular, top management have realized the requirement to strategically manage the knowledge within their organizations as a

means of enhancing their competitive advantage as put forward by the knowledge-based view of the firm (Grant 1996; Davenport and Prusak 1998; Hansen et al. 1999: 10).

Traditionally, the optimal way in which people share knowledge is through face-to-face interactions in social situations (Panahi et al. 2009). However, as technological developments continually increase the fluidity of global communication; firms are required to internationalize faster in order to keep pace with competition globally. Corresponding to internationalization, often knowledge-working employees within an MNC are required to work from geographically dispersed locations which raises issues regarding the ability to share their individually held knowledge across the organization. Additionally, firms have embraced social theories to break down silos regardless of whether they are between individuals, functional departments, or geographically separated subsidiaries. This has led to a plethora of technological solutions in the form of knowledge management systems (KMS) adopted with the goal of enhancing both formal (re: within teams) and informal (re: unofficial) knowledge sharing within organizations (Grace and Butler 2005). Together, these elements allude to the three factor groups influencing knowledge sharing behaviour: individual, organizational (re: social), and technological (Barson et al., 2000; McDermott and O'Dell, 2001; Ardichvili et al., 2006; Cabrera et al., 2006; Riege, 2007; c.f. Paroutis and Saleh 2009: 54).

Despite expectations, there has been relatively limited success associated with investments in formal 'conventional KMSs' which has spurred organizations to experiment with informal, social-based technological tools (Fulk and Yuan 2013: 20). Categories of which are conversational technologies (e.g. discussion boards and wikis), and tools connected to employee social networking user profiles (Wagner and Bolloju 2005). Additionally, it must be noted that there are always barriers to knowledge being shared between two parties (Szulanski 1996) as well as multiple factors effecting the adoption of IT for knowledge sharing (Lee et al. 2007; Cabrera and Cabrera 2002).

Over the past one and a half decades, the rise of KM has been occurring in parallel with the emergence of Web 2.0 and has culminated in what McAfee (2006) has termed Enterprise 2.0. Broadly, this is the proliferation of online user-generated content

through numerous social software tools with which employees share their knowledge via open communication and collaboration tools. The generally accepted business case supporting the value of strengthened knowledge sharing capabilities associated with implementing these social tools (Majchrzak et al. 2006) has caused firms to quickly embrace crowd-sourced collaboration technologies. This requires the development of an internal enterprise social software platform (ESSP) to encourage collaborative employee-created content with a combination of social networking and social software tools, resulting in informal knowledge sharing across borders (Kügler et al. 2013: 3636). Deriving the most value from these social software tools requires a company to generate continuous content via employees' participatory contributions (DiMicco et al. 2008).

As with all technological investments, the optimal level of benefits associated with a system can only be achieved if an organization is able to strategically manage its information systems (Heikkilä 2014). Ensuring that significant investments are not made in technologies which are not properly operated or optimized requires organizations to attain a greater understanding of the underlying factors at play which must be leveraged if they are to make the most of the quickly evolving tools at their disposal. In recent years, ESSP's have risen to the forefront as the ideal technological mechanisms for the creation and sharing of knowledge within an organization (Panahi et al. 2009). As such, further research into the factors which influence employee willingness and contributions to ESSP's is required in order to empirically explore the individual motivational drivers and inhibiting barriers which impact tool adoption and use. It is at this crucial juncture that this Master's thesis' desired outcome is to shed further light into the evolving interrelated role of influential individual, social and technological factors in an effort to improve informal knowledge sharing across borders between the knowledge workers of a diversely spread organization.

1.2 Research Problem

While the acceptance of social software tools has been occurring simultaneously with the rise of social collaboration tools in the general population (E.g. Wikipedia), McAfee (2006: 26) has described management's common "if we build it, they will come"

approach which does not account for an individual's motivational drivers or the barriers of technological tool adoption. The difficulty is then in determining the factors which can be leveraged by management to enhance adoption and utilization of the tools. Adoption and usage, modelled from the theory of planned behaviour (Ajzen 1991), requires employees to move from a positive attitude towards the tools, to developing an intention to use them, and finally acting on that intention demonstrated by contributions within the tools and their behavioural usage for sharing knowledge.

This study's research problem is formally recognized as: "the reluctance of knowledge workers to contribute to the communication and collaboration tools provided within a company's enterprise social software platform (ESSP) for the purpose of informal cross-border knowledge sharing." This problem was derived from a gap identified in the literature and evolved through a discussion with a representative of a large manufacturing company which provided a unique context in which to study the phenomena. This company currently utilizes an ESSP within which the following three tools have received varying degrees of usage: user profiles (a component of social networking), a wiki, and a discussion board. It is of strategic importance for the company to leverage the individually held knowledge of its geographically dispersed knowledge workers through utilizing its internal ESSP to enhance cross-border collaboration and knowledge sharing. As such, it is this research's objective to solve the research problem at the large manufacturing company, from this point on referred to as 'the case company'. Furthermore, defining one's employees as knowledge workers implies that knowledge is an essential aspect of the job and can be shared across border within the organization (Nonaka and Takeuchi 1995). This requires tools which overcome the associated geographic challenges; however, which also enhances the issue of the codification of tacit knowledge in electronic platforms given that tacit knowledge is more difficult to share than explicit knowledge (Panahi et al. 2009).

Although the problem of employee adoption and utilization of technology for knowledge sharing within enterprises is widely occurring and a much research subject matter (Ashton et al. 2011); this thesis proposes to close the following research gap. While prior research has analyzed this problem either without including technological

factors (Paroutis and Al Saleh 2009) or only at a conceptual level applying innovation diffusion theory and social capital theory (Kügler et al. 2013); no existing research was found which combines individual, social and technological factors of knowledge sharing to specifically analyze a knowledge worker's intentions and usage of an ESSP's tools for the purpose of informal cross-border knowledge sharing. Therefore, this study will address the need of organizations which have implemented an ESSP and want to improve its knowledge sharing effectiveness but first need to understand the individual, social and technological factors at play. As such, these three groups of factors provide the triangle of theoretical concepts forming the foundation upon which this study builds.

1.3 Research Questions

As the research problem and purpose of the study have been outlined, the research questions crafted to focus the Master's thesis research will now be presented. Ajzen's (1991) theory of planned behaviour was adopted to assist in structuring the research questions given this study's focus on analyzing individual employee's attitude, behavioural intention, and behavioural usage of tools within one enterprise social software platform (ESSP). Given the previously defined research gap, the research questions have been developed to gather depth around the issue rather than prove a theory resulting in this study's exploratory nature. As a result of this empirical research taking place within the context of one organization, the case company's knowledge workers represent the subject matter of focus for analyzing adoption and utilization behaviours at the individual level of analysis. The overarching research question has been developed with three following sub-questions, each of which providing a deeper understanding of the underlying factors influencing adoption and utilization of the tools.

1. What factors influence a knowledge worker's willingness (re: attitudes and behavioural intentions) and contributions (re: usage behaviours) to informal cross-border knowledge sharing via an enterprise social software platform's tools?

1. (a) What are employees' perceptions of their own role as knowledge workers who are responsible for informal knowledge sharing?

1. (b) How do employees contribute to informal knowledge sharing across borders through the use of the specific enterprise social software platform tools: a user profile, a wiki, and a discussion board?

1. (c) What are the motivational drivers that influence employees to contribute, or not, to knowledge sharing via an enterprise social software platform's tools?

Firstly, a heuristic framework will be created from the literature review of the individual, social, and technological factors influencing employee knowledge sharing. Secondly, upon completion of the data collection, the development of an integrative framework supported by the research findings will assist in analyzing the data with the aim of answering the above research questions and providing a solution to the research problem. Analysis of the factors which are drivers and barriers to employee utilization of an ESSP's tools will complement the international business and management field's understanding of these tools acceptance for sharing knowledge informally across borders. This research will provide the case company, as well as other firms experiencing the same problem, with the managerial implications of the factors influencing their employees' social software tool utilization. This can then be leveraged to reduce the reluctance of knowledge workers to contribute to the company's ESSP.

1.4 Scope of the Study

Due to resource limitations of time, financing, and accessibility, this study is limited to answering the research questions within the MNC context of one case company. The objective of the research is to analyze the factors associated with an individual's attitude and behavioural intention leading to usage of social software tools within an enterprise social software platform (ESSP). Only three tools were selected from the multitude of those available for analysis to compare adoption and usage patterns. Additionally, as

access to the raw contributions within the ESSP's tools was restricted, the study is limited to the collection and analysis of self-reported behavioural usage.

The user profile, wiki and discussion board being studied represent informal cross-border knowledge sharing as they are tools affording the opportunity for an MNC's geographically dispersed knowledge workers to share their knowledge and experiences within the global ESSP via informal communication and collaboration. The issue becomes encouraging adoption of these tools which requires understanding individual user perceptions to analyze their attitude and behaviours. As the three tools are located within the case company's global ESSP used by employees in every subsidiary around the world; the international dimension of the study is attained when the research is limited to studying contributions within these three focal tools without distinction if the sharing interaction occurs between individuals across borders either geographic or functional. Furthermore, the knowledge sharing of focus is on 'informal' communication and collaboration, in that the relationship between the knowledge seekers and senders is not that of members of teams or work groups either co-located or virtual. This is not related to the perceived formality of the tools themselves.

1.5 Structure of the Study

This thesis is divided into six sections. Chapter 1 provides an introduction to the research, including: the background of the study, identification of the research problem, development of the research questions as well as outlines the study's structure.

Chapter 2 summarizes the theoretical perspectives applied in the study. This section discusses the most widely recognized and accepted theoretical perspectives, models, and definitions from the relevant literature identified. In particular, this section provides a broad overview of what is currently known and unknown related to each of the three groups of factors which have been previously found to influence knowledge sharing. First, a brief overview of knowledge management is provided. This is followed by a critical review of the individual, social, and technological factors at play. This chapter concludes with a heuristic framework which materialized from the literature reviewed.

Chapter 3 describes the strategy and method applied in the thesis with which the research was carried out. This section guides the reader from the data collection to the data analysis process explaining how validity and reliability were achieved.

The findings of the study are presented in Chapter 4. Included in this section is an integrative framework ascertained from an analysis of the data collected via semi-structured interviews with knowledge workers from the case company. The self-reported behavioural usage of the three focal tools are presented to assist in explaining the factors which impact the process wherein an individual moves from attitude, to behavioural intention, and finally to behavioural usage. The factors are classified into three groups (individual, technological, and social) within each of which two categories exist containing multiple influential determinants. The relationships between these determinants and behavioural intention and usage is then analyzed in detail with support from contextual quotes. A summary is then provided of the knowledge outcomes being shared through each of the three tools of the user profile, wiki and discussion board.

Chapter 5 further analyzes the findings outlined in the previous chapter in relation to the existing literature. The aim of which is to answer this study's research questions through discussing the implications of the integrative framework for understanding the three groups of factors influencing behavioural intention. The attitudinal influencers and behavioural outcomes of the tools are discussed in conjunction with a critique of the framework's explanation of tool adoption. Additionally, speculations are formulated regarding the existence of a process and hierarchy within the framework which an employee follows when choosing to adopt and utilize a tool for informal cross-border knowledge sharing.

Finally, Chapter 6 presents the managerial implications of the study and its main contributions to the field of international business and management. This chapter concludes with the limitations of the study and proposes suggestions for future research.

2 LITERATURE REVIEW

The literature review sets out to identify both what is currently known as well as unknown in the subject area of knowledge worker adoption and usage of an ESSP's tools for informal cross-border knowledge sharing within the academic field of international business and management. As this research is exploratory in nature, the literature review is conducted at a broad-level across multiple subject areas, rather than a deep dive into a specific area. This section begins with an overview of the role of knowledge in the MNC. This is followed by a thorough critical analysis of the three overarching groups of factors influencing knowledge sharing highlighted by Paroutis and Al Saleh (2009: 54): individual, organizational (re: social), and technological. This section concludes with a heuristic framework to guide the research and a summary of the research gap identified; the aim of which is to develop an integrative framework which explains the factors and relationships existing within the heuristic framework.

2.1 Overview of Knowledge in MNCs

This section provides an overview of the literature regarding the philosophical debate surrounding the characteristics of knowledge, the importance of knowledge management within organizations, and an analytic review of the research on knowledge sharing to date including the activity's dual roles and theories previously applied.

2.1.1 The Characteristics of Knowledge

It is beyond the confines of this study to address the philosophical debate surrounding the question of "what is knowledge" which has been ongoing for years (Nonaka and Takeuchi 1995). Although many debates fall outside the scope of this study, a few clarifications have been made to aid in the focus of the research. One such debate is whether to view knowledge as an 'object' that can be captured, a 'process' that can be managed, or a 'capability' to be built (Liyanage et al. 2009: 120). Knowledge has also been classified as 'know what', 'know how', 'know why' and 'know-whom' (Panahi et al. 2013: 379; Chatti et al. 2009: 405). The contextual nature of knowledge applies to this research primarily in

terms of being an ‘object’ that can be shared within social software tools related to all four of the classification’s depending on the employee’s objective.

Furthermore, a distinction must be made between tacit which is non-verbalised, intuitive and unarticulated knowledge (Polanyi 1962) and explicit knowledge which is codifiable and easily articulated (Koulopoulos and Frappaolo 1999). This distinction is significant in that the main prerequisite for tacit knowledge sharing is social interaction (Yang and Farn 2009). This research supports the proposition that knowledge exists within a continuum of varying degrees of tacitness and that as such, different social software tools will be more effective for sharing higher tacit knowledge than others (Panahi et al. 2013). In relation to this study, the characteristics of explicit and tacit knowledge has resulted in arguments supporting the suitability of explicit knowledge sharing via technological mechanisms, while information communication technology has been fiercely debated over the past decade and a half as to its ability to successfully share tacit knowledge (Roberts 2000: 439). As such, this study will follow the work of Mäkelä (2006) in that it will analyze all forms of knowledge shared within the social software tools, rather than focus solely on either explicit or tacit knowledge.

Another distinction has been made between data, information, knowledge, and expertise as stated within Bender and Fish’s (2000) knowledge hierarchy. Important to note is that as the movement is made from data to expertise, knowledge becomes more tacit as it is constructed on an individual level as well as within social groups. However, this thesis will follow the accepted perspective of Wang and Noe (2010) in that the terms ‘knowledge’ and ‘information’ will be used interchangeably given the limited practical value of distinguishing between them with regard to knowledge sharing.

It follows that this research will apply Wang and Noe’s (2010: 117) definition of knowledge sharing which refers to “the provision of task information and know-how to help others and to collaborate with others to solve problems, develop new ideas, or implement policies or procedures.” Additionally, knowledge sharing is portrayed by Liyanage et al. (2009) as a bilateral exchange between people at an individual level. As such, in agreement with Cabrera et al. (2006), the terms ‘knowledge sharing’ and

‘knowledge exchange’ will be used interchangeably in referring to the act of employees engaged in both sharing and seeking knowledge. This definition also differs from one-directional ‘knowledge transfer’ in that the knowledge flows in both directions; however, knowledge transfer theories are still valuable for their identification of barriers in the exchange process between two parties (e.g. Szulanski 1996). This brings the discussion to the topic of how organizations strategically manage knowledge.

2.1.2 The Importance of Knowledge Management

In the words of Kogut and Zander (1992: 384), “the central competitive dimension of what firms know how to do is to create and transfer knowledge efficiently within an organizational context.” The 1996 OECD report “The Knowledge-Based Economy” emphasized the development of networked societies of employees interactively sharing their knowledge with the aim of diffusing information throughout an organization (OECD 1996). At the same time, with the knowledge-based view of the firm, Grant (1996) proposed that the strategic management of employees’ individually held specialized knowledge by an organization plays a crucial role in the development of their core competencies. Concurrently, Spender (1996) contrasted this point with a discussion of socially constructed knowledge that is embedded in the cultures, routines, and norms of teams. This research will consider both views of knowledge considering that it is the specialized individual knowledge which organizations want their employees to share, yet it is through the means of collaboration and communication via social software tools which develop socially constructed knowledge.

In the past two decades, significant academic advances have been made in the area of knowledge management (KM) providing greater understanding of its antecedents (Zhao and Luo 2005), transfer mechanisms (Karlsen and Gottschalk 2004), processes (Szulanski 1996), and the organizational outcomes of the flow of knowledge (Liyanage et al. 2009). KM and knowledge sharing between organizational members is commonly associated with the following benefits: best practice sharing (Szulanski 1996), solving problems (Parent et al. 2007), developing innovation through collaboration (Panahi et al. 2013), and improved decision making (Liyanage et al. 2009).

Within KM there are four central processes which take place: creation, sharing and retrieval, transfer, and application (Alavi and Tiwana 2003: 114). This research focuses specifically on the role of informal knowledge sharing across borders; however, it is also important to reflect on the entire process in order to acquire a greater comprehension of the influencers of social software tool adoption. Nonaka's (1994) heavily cited work associated with the SECI model's four stages of knowledge creation also factors into this research. Especially concerning where tacit knowledge is converted into explicit knowledge in the externalization stage through employee's writing their experiences within the communication tools (e.g. discussion board), and in the combination stage where multiple employees explicit knowledge is brought together to create new knowledge within collaboration tools (e.g. wiki).

2.1.3 Knowledge Sharing in MNCs

Although knowledge sharing is not a process but rather a naturally occurring interpersonal activity (Mäkelä 2006); when researching KM, it is important to understand the various process models used to describe how knowledge flows within an organization. Every model reviewed has four primary factors in common, which are: the existence of "knowledge", an identified need or awareness to share that knowledge, a source who will be the sender of the knowledge, and a receiver of the knowledge who will be applying it (Szulanski 1996: 268; Liyanage et al. 2009: 126).

As previously mentioned, this study focuses on both sides of the knowledge sharing experience including the individual's role of that as a knowledge seeking recipient (searching for knowledge held by others) as well as that of a knowledge sharing source (sending their knowledge sought by others) (Wang and Noe 2010). Going forwards, the terms "knowledge seekers" and "knowledge senders" will be used to represent the two sides of the knowledge sharing exchange relationship. Regarding the aforementioned barriers, significant for this research are implications related to the context of an arduous relationship between seekers and senders given the social nature of the tools (Szulanski 1996). As this relationship requires that the knowledge seeker must first find the knowledge sender, the identification of trusted experts within the organization

holding the required know-how to assist the knowledge seeker is expected to play a significant role in an employee's utilization of the ESSP's available tools. Factors influencing the relationship between knowledge seekers and senders will be explored in more detail in the social factors section of this review.

In analyzing knowledge sharing within organizations to optimize its occurrence, academics have applied a variety of theories related to: individual determinants (e.g. AMO theory), organizational or social determinants (e.g. social capital theory), and technological determinants (e.g. technology acceptance theories). Wang and Noe's (2010: 122) review article provides a more exhaustive list of theories applied to knowledge sharing in the existing research. However, their review provides a rather limited analysis of the technological adoption theories applied to knowledge sharing mechanisms; especially considering the rate at which technology is utilized for this function within geographically distributed organizations. In particular, application of Venkatesh et al.'s (2003) unified theory of acceptance and use of technology was found to be limited and as such, it will be analyzed later in this review. On this note, a review of the individual factors influencing knowledge sharing will now be presented.

2.2 Individual Factors Influencing Knowledge Sharing

This section will review the existing literature on factors which influence an individual's attitude and intention to share knowledge. It begins with a brief overview of the theory of planned behaviour leading to a discussion of the role of knowledge workers in the activity of sharing their knowledge. This is followed by an analysis of AMO theory as applied to knowledge sharing with an emphasis on a knowledge worker's motivational drivers and inhibiting barriers towards sharing.

2.2.1 Influence of Knowledge Worker Roles on Attitude Towards Sharing

First and foremost when analyzing the actions of individuals, an understanding of the influencers of attitudes and intentions resulting in knowledge sharing behaviours is required. Ajzen's (1991) theory of planned behaviour (TPB) has been adopted for this

study. Although the theory of reasoned action (TRA) has been frequently applied in the study of knowledge sharing (e.g. Bock et al. 2005) to describe how an individual's beliefs and attitudes influence their behaviours (Fishbein and Ajzen 1975), this theory evolved into the TPB to meet the criticism that one cannot always act in the manner in which they desire due to circumstantial limitations (Sheppard et al. 1988). TPB states that an individual's behavioural intentions and behaviours are shaped by their attitude towards behaviour, subjective norms, and perceived behavioural control (Ajzen 1991). Wherein perceived behavioural control is associated with self-efficacy and expectancy theory in that employees will behave according to their intended motivation associated with achieving a desired outcome given the effort required and belief in their ability to successfully perform the behaviour (Bandura 1977). Finally and most critically for this study's focus on the adoption of social software tools is that "the role of intention as a predictor of behaviour (e.g. usage) is critical and has been well-established in IS (information systems)." (Venkatesh et al. 2003: 427)

The theory of planned behaviour (TPB) is highly applicable in this study as the clearly defined outcome of knowledge sharing behaviour requires employee's to possess a positive intention towards the activity. This starts with an employee's positive or negative attitude towards knowledge sharing behaviour shaped by individual factors which influences their initial intention. Their intention is then influenced by both the social factors associated with subjective norms and the technological factors associated with perceived behavioural control. The work of Bock and Kim (2002) support this claim through showing that knowledge sharing intentions and behaviours were related to knowledge sharing attitudes resulting from individual's expectations of improving relationships through the useful knowledge they share. Subjective norms will be analyzed later more closely in terms of the social factors which influence one's intentions with respect to an employee's peers' and supervisor's approval of knowledge sharing activities (Cabrera et al. 2006). Furthermore, literature relating to the TPB's application within the adoption of technology will be provided in the technological factors section of the review. Overall, TPB will be useful to this research in structuring the process by which knowledge workers are influenced by numerous factors along the path from attitude formation to intention, resulting in knowledge sharing behaviour via

social software tools. This requires first defining what is a ‘knowledge worker’, and the impact of this organizational role on one’s attitude towards knowledge sharing.

In Drucker’s (1993) depiction of the ‘knowledge society’ wherein knowledge is the central economic resource; a key role is played by its greatest asset, the knowledge worker who “knows how to allocate knowledge to productive use” (Nonaka and Takeuchi 1995: 7). A central pillar on which this thesis stands is the role of the knowledge worker as the primary category of employee desired by an organization to share their knowledge using an enterprise social software platform’s (ESSP’s) tools. Although knowledge worker definitions vary greatly, the recurring central theme is that they ‘think for a living’, solve problems in an unstructured way, and spend a significant portion of their time searching for information (Sellen et al. 2002).

This study applies Sellen et al.’s (2002: 228) definition of a knowledge worker as “someone whose paid work involves significant time gathering, finding, analyzing, creating, producing or archiving information.” Nonaka and Takeuchi (1995: 151-158) expand on the concept to include a knowledge creating crew consisting of knowledge practitioners (re: front-line operations employees), engineers (re: middle management), and officers (re: top management); of which this study focuses on the practitioners and engineers who share their knowledge via communicating and collaborating with an ESSP’s tools. Past research has also utilized knowledge workers as the subject of study in relation to social software for knowledge management and organizational culture fit (Zhang 2012) as well as for analyzing behavioural intention formation in knowledge sharing (Bock et al. 2005). It follows that self-identified knowledge worker roles results in a positive attitude towards both engaging in knowledge sharing and utilizing an ESSP’s tools given the enhanced volume of valuable knowledge to which these activities and tools provide access; reducing the time required searching for information.

Although a knowledge worker’s role specifically involves the search for information and manipulation of knowledge, this does not necessarily mean that the activity of sharing one’s knowledge is considered an in-role behaviour (re: expected and potentially rewarded) as opposed to an extra-role behaviour (re: sharing not being

within one's formal job description) (Minbaeva 2008; Wang and Noe 2010). Treem and Leonardi (2012) found that the majority of studies regarding social media tool use have focused on the motivation of individual discretionary (re: extra-role) users to contribute their knowledge. However, no studies were found in which attitudes of voluntary users of social software technologies for extra-role knowledge sharing were compared to those of mandatory users associated with in-role behaviour.

While personal characteristics have been shown to positively influence knowledge sharing behaviour such as that of openness to the experience and self-efficacy (Cabrera et al. 2006), a detailed review of all influencing characteristics is beyond the scope of this study. However, the following are two characteristics of particular relevance given the study's focus on a knowledge worker's usage of social software tools. The first is that employees are expected to share more willingly if they perceive that they hold valuable knowledge accumulated over years of experience (Cabrera et al. 2006), in particular in relation to sharing via electronic media (Wasko and Faraj 2005). And secondly, usage of electronic collaborative media for information sharing is strongly influenced by a user's computer-related comfort level and ability (Jarvenpaa and Staples 2000). It follows that an employee self-identifying as a knowledge worker having accumulated expertise through years of experience will be more motivated to share their knowledge, particularly if they are comfortable in their ability to use the social software tools provided. This requires a deeper review of the factors influencing an individual's ability, motivation, and opportunity shaping their attitudes towards knowledge sharing.

2.2.2 Focus of AMO Theory on Motivational Drivers and Inhibiting Barriers

Important to the discussion of factors influencing an individual's attitudes and behaviour in relation to the field of management is Appelbaum et al.'s (2000) ability-motivation-opportunity (AMO) theory. The basis of AMO theory is that an individual's behavioural actions are dependent on the interaction via multiplication of their ability (re: having the skill to do the action), by their motivation (re: a willing attitude to act), and their opportunity (re: to act via contextual mechanisms) (Rothschild, 1999).

Depending on the action to which AMO theory is being applied, the specific characteristics will vary in relation to an individual's ability, motivation, and opportunity resulting in a successful outcome. Given the context of this research, ability refers to an employee having useful knowledge to share and the technical skills to use the social software tools without effort; motivation refers to desired outcomes associated with intrinsic and extrinsic incentives; and opportunity refers to having access to the enterprise social software platform (ESSP) in which the activity of informal cross-border knowledge sharing is encouraged and supported by the social and organizational context. Siemsen et al.'s (2008) AMO research regarding a sender informally sharing knowledge within a workgroup is applicable to this study in that they suggest that one of the three variables will act as a constraining factor which must be addressed specifically by management in order to achieve the desired action.

Within this study, motivation and ability are of primary interest as possible constraining factors, given that the opportunity for all knowledge workers to utilize an ESSP's tools is held constant as everyone has equal access to the tools. As such, both an employee's motivation to achieve specific desired outcomes using the tools as well as their ability to use the tools in terms of effort required, are expected to play a more prominent role in this study. Therefore, as motivation has been identified as a driving factor in both the theory of planned behaviour and AMO theory, it is important that the review delves more deeply into the motivational drivers and inhibiting barriers which influence an individual's knowledge sharing attitudes.

Although a lack of motivation on behalf of either the knowledge source or recipient was not found to be a significant stickiness barrier by Szulanski (1996); studies have shown that motivation plays an essential explanatory role in successful knowledge sharing (Davenport and Prusak 1998; Argote et al. 2003; Siemsen et al. 2008). One of the strongest positive motivator's for an individual to share their knowledge is the attitudinal belief that the activity will result in acquiring personal benefits associated with a desired outcome (Wang and Noe 2010). Value-expectancy theory states that "an individual's behaviour is a function of the perceived likelihood, or expectancy, that his or her behaviour will result in a valued outcome." (Cabrera and Cabrera 2002: 696)

One of the primary research objectives of this study is to discover the motivating determinants (re: desired outcomes) of knowledge worker's to engage in informal cross-border knowledge sharing via an ESSP's tools. For example, Kankanhalli et al. (2005) found that the intrinsic benefits of knowledge self-efficacy and enjoyment in helping others significantly impacted the usage of electronic knowledge repositories even when not moderated by contextual factors; whereas the influence on sharing from the extrinsic benefits of reciprocity and organizational reward required contextual social factors. Furthermore, helping others via knowledge sharing has been shown to be tied with one's intrinsic motivation (Davenport and Prusak 1998; Wasko and Faraj 2005; Cabrera et al. 2006). Despite Argote et al.'s (2003) claim that incentives and rewards are important components of the knowledge management process, Bock et al. (2005: 88) found that "anticipated extrinsic rewards exert a negative effect on individuals' knowledge-sharing attitudes." This is an example of motivation crowding theory wherein extrinsic motivators such as monetary incentives can undermine one's intrinsic motivation to perform an act, such as sharing knowledge (Minbaeva 2008).

A review of the motivators of knowledge sharing behaviour is not complete without a contrasting view of the barriers which have been proven to reduce an individual's sharing of knowledge (Wang and Noe 2010). Of significant importance for this study is the role of effort-related costs from the activity of knowledge sharing given that one must not only be motivated to share their knowledge with others, but will also have to overcome the hurdle of doing so via technological tools. An example of this is Kankanhalli et al.'s (2005) research which found that one's use of electronic knowledge repositories was negatively impacted by an employee's weak trust in others' use of their knowledge and reciprocating, combined with the perception of the time and effort required to codify their knowledge to be shared. It is also inferred that one's perceived time and effort costs are determined by their self-efficacy. An additional expected inhibitor of knowledge sharing in the context of this research previously found by Bordia et al. (2006) is regarding the knowledge sender's evaluation apprehension of other's negative feedback towards their knowledge contributions.

To sum, in this study it will be interesting to analyze how a knowledge worker's attitude towards knowledge sharing behaviour is influenced by their most constraining factor of ability, motivation, or opportunity. Most influential of which is expected to be motivation. As such, additional motivators and inhibitors will be presented in the following sections associated with both social as well as technological factors influencing knowledge sharing via an ESSP's tools. Finally, as subjective norms were already identified within the theory of planned behaviour for their influence on one's intentions, the discussion now turns to the social factors and relationships at play within the activity of knowledge worker's informally sharing their knowledge across borders.

2.3 Social Factors Influencing Knowledge Sharing

The importance of social relationships for knowledge sharing cannot be understated as "all economic action is embedded in social relationships and accordingly that interpersonal networks shape knowledge and learning within organizations by creating channels in which knowledge can flow." (Mäkelä 2006: 19) It follows that as social relationships are required between two or more parties (re: seekers and senders) of knowledge workers engaging in the activity of knowledge sharing, this implies an interpersonal social dimension of the phenomenon within the social software tools of focus. This section of the literature review provides an analysis of the social factors influencing the knowledge sharing process in terms of: social theories previously applied, the organizational context, and the role of social capital theory.

2.3.1 Social Theories of Knowledge Sharing

It has been argued that knowledge is socially constructed within groups (Spender 1996; Lee et al. 2007) requiring social interactions between individuals motivated through the process of negotiated exchanges. Furthermore, social cognitive theory has been applied to a lesser extent in knowledge sharing wherein employees learn and apply new behaviours through observing the actions and corresponding consequences of others (Wang and Noe 2010). The logical continuation from which is the role of social learning theory (Bandura 1963) applying the same principle of learning behaviours

through observation via individual's conversational interactions. Hence, Noorderhaven and Harzing (2009) argued that social learning theory is superior for explaining knowledge sharing than the knowledge transfer process' one directional sender-receiver model applied to MNCs at a unit level of analysis by Gupta and Govindarajan (2000).

Despite advances in communication technologies, in relation to knowledge sharing, rich informal face-to-face communication has been frequently stated as the optimal method of sharing due to the enhanced social interaction intensity which is a characteristics of its bandwidth (re: expressing non-verbal cues) and synchrony (re: immediate feedback) (Noorderhaven and Harzing 2009: 724). However, this study focuses on technological mechanisms for knowledge sharing over distances due to the continual push from organizations to utilize less expensive mechanisms compared to the significant expense involved in people-based mechanisms (e.g. expatriates) (Klitmøller and Luring 2013).

In the context of this study where the concept of social interaction intensity between individuals is applied in terms of technology adoption, the clear focus becomes the role of employee interaction visibility in achieving perceived critical mass through social dynamics (Kügler et al. 2013). An important aspect of Roger's (2003) extensive work on the diffusion of innovations is that a technology's adoption will grow and become self-sustaining (re: achieve critical mass) once a sufficient number of adopters has been reached. This phenomenon is expected to play a significant role in a knowledge worker's adoption of an ESSP's tools for knowledge sharing when they have the opportunity to observe other's using the tools and deriving beneficial outcomes from the tools' implementation within a supportive organizational context.

2.3.2 Knowledge Sharing Organizational Context

The ideal organizational context in which knowledge sharing occurs requires the creation of a supportive knowledge sharing organizational culture (e.g. employee trust and willingness to help) (Chatti et al. 2007; Liyanage et al. 2009; Wang and Noe 2010). Within which, social software tools have been found to assist with the cultural fit of knowledge workers through helping them obtain the knowledge required to be a more

productive employee (Zhang 2012). Additionally, Michailova and Minbaeva (2012) emphasize the link between organizational culture and knowledge sharing in terms of assisting employees in perceiving values which reinforce desired knowledge sharing behaviours. Trust being one of the most researched values associated with a knowledge sharing organizational culture (Wang and Noe 2010) as it has the ability to reduce the perceived costs associated with sharing (Kankanhalli et al. 2005).

Within the context of this study, an organization requires a culture which promotes its knowledge assets as well as has the technological systems in place allowing users to locate and retrieve applicable knowledge for decision making or problem solving (Karlsen and Gottschalk 2004: 4). Of particular relevance for this study is King and Marks (2008) discovery that when controlling for a knowledge management system's ease of use (re: effort) and usefulness (re: benefits), no significant effect of organizational support on knowledge sharing was found. Although this could be a side effect of the governmental setting in which the research was conducted as the finding is contrary to popular belief regarding the impact of an organization's culture on sharing.

Bock et al. (2005) suggests that manager's build facilitative work contexts in terms of an organizational climate (e.g. supporting fairness, affiliation, innovativeness) which affects an individual's subjective norms, in turn influencing their behavioural intentions towards knowledge sharing within electronic knowledge repositories. This was supported by Cabrera and Cabrera (2005) in that a supportive knowledge sharing culture was promoted by open communication and fairness in management practices. This clearly demonstrates the expected indirect effect of management on employee intentions regarding their perception of an organization's knowledge sharing culture.

This highlights the role of management and supervisor support on a knowledge worker's sharing attitudes and intentions (Wang and Noe 2010) and adoption of social software platforms (McAfee 2006). Related to the previously introduced role of subjective norms' influence on behavioural intention, Cabrera et al. (2006) found that an individual's perceived support from approving supervisors and colleagues resulted in enhanced knowledge exchange behaviours. Additionally, Cabrera et al. (2006: 260)

state the importance of top management's commitment in that they can "send strong messages to the organization as to how important sharing knowledge is. These messages can be direct or indirect, through modelling, rewards and recognition."

In regards to the role of supervisor and colleague support in this study, the social influence factor of 'important (referent) others' has also been determined as one of the four key constructs of technology adoption within the unified theory of acceptance and use of technology (Venkatesh et al. 2003). Furthermore, highly aligned with this study's context is Paroutis and Al Saleh's (2009) finding that organizational and management support in terms of promoting and communicating the benefits of using web 2.0 technologies were key factors in determining employee collaboration and knowledge sharing using social software tools. Also related to contributions within ESSPs, Brzozowski et al. (2009) established the effect of manager's and co-workers' visible feedback and activity in the form of posted comments to be highly correlated with an employee's continued usage of social software. As such, it follows that supervisor role-modelling and colleague usage behaviours will be highly influential social factors influencing a knowledge workers' adoption and usage of social software tools. This leads to a discussion on the final social aspect significantly influencing knowledge sharing and technology adoption, the role of social capital in social relationships.

2.3.3 Social Capital Theory for Knowledge Sharing with ESSP Tools

As a determinant of knowledge sharing between a source and the receiver is the social relationship that exists between them (Evans et al. 2011: 402), and the objective of this study is to acquire a deeper understanding of the determinants of employee knowledge sharing via an ESSP's tools; it is crucial to acknowledge the role of social relationships through the perspective of Nahapiet and Ghoshal's (1998) three-dimensional framework of social capital. The primary concept behind social capital theory (SCT) is that the network of interpersonal relationships existing between people are an intangible resource that must be maintained in order to provide benefits such as greater access to information which supports enhanced collaboration and innovativeness through more easily sharing tacit knowledge (Nahapiet and Ghoshal 1998; Inkpen and Tsang 2005).

The following definition of social capital has been adopted for this study as it is the most widely recognized in the field of international business (Mäkelä 2006: 39): “the sum of actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through that network.” (Nahapiet and Ghoshal 1998: 243) This definition highlights the aspects within social capital which must be analyzed within a network of relationships such as those existing between the users of ESSPs. Although this study applies a social capital perspective, it’s important to differentiate this from the social network approach which focuses on access to resources via network position or tie configuration (Hansen 1999).

The role of SCT is widely acknowledged in its application to the activity of knowledge sharing in person (Inkpen and Tsang 2005; Yang and Farn 2009), as well as combined with technology: for social software contributions (Wasko and Faraj 2005), related to social networking sites (Steinfeld et al. 2009; Fulk and Yuan 2013) and most closely to this study, individual adoption behaviour of ESSPs (Kügler et al. 2013). Social media tools have also been shown to have a strong influence in both their application of social capital to support one’s connections (Treem and Leonardi 2012) as well as in its formation (Leonardi et al. 2013). Furthermore, the positive bi-directional link between social capital formation (of both new and existing relationships) with an employee’s increased usage of the social networking aspect of social software tools has found strong support from multiple studies (e.g. Huysman and de Wit 2004; Huysman and Wulf 2006; Steinfeld et al. 2009). In relation to the focal tools of this study, it is important to note social capital’s strong link with the social networking side of social media as applied to user profiles; while conversational technologies (e.g. the wiki and discussion board) harness communal knowledge and the social capital of groups by supporting the natural process of conversation (Wagner and Bolloju 2005: 7).

SCT is an ideal perspective for this study given its ability to tie together the fields of knowledge sharing and interpersonal social relationships which form the basis of a knowledge worker’s utilization of social software tools (Kügler et al. 2013). The research of Kankanhalli et al. (2005) also applied social capital to the adoption of

repositories for knowledge sharing, wherein social capital was used to account for the moderating influence of contextual factors (re: generalized trust, pro-sharing norms, and identification). Further justification for the use of SCT to account for organizational climate (re: social) factors in studying ESSPs is provided by Kügler et al. (2013: 3637):

“SCT is able to cover key aspects of organizational climate we deem relevant to ESSP usage (such as trust, norms, and identification) [Nahapiet and Ghoshal 1998] and SCT “has a direct relationship to the community aspects of and motivation for participation in social computing” [Parameswaran and Whinston 2007: 342].”

Nahapiet and Ghoshal’s (1998) three-dimensional social capital framework (i.e. structural, cognitive, relational) provides a unique perspective with which this research’s study of the phenomenon of knowledge sharing via an ESSP’s tools is conducted. Furthermore, in explaining informal knowledge sharing using information technology tools via organizational theory, Huysman and Wulf (2006: 44) demonstrated the relationship between the three factors of AMO theory applied to knowledge sharing (Adler and Kwon 2002: 23) with the three dimensions of social capital (Nahapiet and Ghoshal 1998) in the following way: structural opportunity dimension, cognitive ability dimension, and relation-based motivation dimension. This perspective assists in tying the individual factors to the social factors, particularly as to how they affect one’s contribution motivations through: tie strength; shared cognitive ground; and, trust and reciprocity. It is at this point that a discussion of each of the social capital dimensions will be provided as they apply to an individual’s use of the tools within an ESSP.

Structural Dimension

The structural dimension of social capital reflects how an individual is connected through elements of the network associated with its: size, length, position, and intensity in terms of frequency of interactions (Michailova and Mustaffa 2012: 388). The facilitation of access to relevant knowledge which will be potentially shared increases with the number of relations one has within the network (van Wijk et al. 2008). Within

the social network structure there are varying degrees of ties both horizontal and vertical between members which assist in achieving the know-who desired outcome of expert identification (Wang and Noe 2010). Hansen (1999) argued that tie strength represents the closeness of a relationship between two partners (re: a factor of frequency and communication) and that weak ties are suited to sharing explicit knowledge, while tacit knowledge requires stronger ties. In respect to the structural opportunity in the context of this study, it follows that a knowledge worker will have a greater opportunity to acquire and share knowledge informally with increased usage of an ESSP's tools due to building more and stronger ties across the whole organization (Steinfield et al. 2009).

Furthermore, bonding refers to social ties which are stronger and deeper within close nit homogeneous groups; whereas bridging refers to weaker ties stretching further between heterogeneous groups (Putnam 2000). Benefits of bonding are: mutual and collective goals, trust, and reputation building (Mäkelä 2006: 38). While reputation building has been found to be a significant motivator of face-to-face knowledge sharing behaviour (Argote et al. 2003), there have been mixed findings within electronic mediums both significant (Wasko and Faraj 2005) and not (Kankanhalli et al. 2005). Of particular interest to this study is Burt's (1992) discovery that a knowledge brokerage position will be held by social actors in a centralized position within the network which provides the ability to bridge across structural holes to close knowledge gaps. The benefits of cross-border boundary-spanning bridging for knowledge senders and seekers is: access to a greater volume of knowledge from specialized sources, quicker time to acquire desired knowledge, and referrals which can increase ones reputation via 3rd parties (1992).

Cognitive Dimension

Social capital's cognitive dimension "reflects the extent to which two parties are capable of sharing their knowledge." (Evans et al. 2011: 403) Knowledge sharing within this dimension is heavily influenced by the organization members' shared vision, values, systems of meaning, language, vocabulary, goals, and mindsets (Nahapiet and Ghoshal 1998; Tsai and Ghoshal 1998). These shared elements enable social actors to collaborate by integrating their knowledge and facilitating its sharing by providing a

crucial bonding mechanism through mutual understanding of shared cognitive ground (Nonaka and Takeuchi 1995; van Wijk et al. 2008). The cognitive dimension also has a cultural distance factor wherein the differences between two actors will result in misunderstandings which could limit the sharing of knowledge (Szulanski et al. 2004).

Shared cognitive ground has been identified within technological tools in terms of people sensemaking occurring through identifying common ground located within a social networking sites' user profiles of employees (e.g. interests or skills) about whom one knew little (DiMicco et al. 2009). Regarding one's cognitive ability to share knowledge via an ESSP, Kügler et al. (2013) proposed using an individual's private social software experiences (e.g. contemporary equivalents) as a mediator of usage-determining factors for an ESSP given the proliferation of similar tools in the private realm which enhances one's comfort and self-efficacy with social media tools. Cognitive capital has also been associated with the aforementioned requirement that knowledge worker's perceive that they have expertise and experiences worthwhile to contribute to electronic platforms (Wasko and Faraj 2005). Overall, the cognitive ability of knowledge workers to share should be enhanced through utilization of an ESSP's tools, in particular when shared cognitive ground is identified through user profiles.

Relational Dimension

The relational dimension of social capital reflects the nature of the interpersonal connection between social actors such as: trust, norms, obligations and identification with other actors in the social network (Nahapiet and Ghoshal 1998). Trust between partners has been argued as one of the strongest determinants of knowledge sharing (Szulanski et al. 2004; van Wijk et al. 2008). This is due to the belief that those which are trustworthy are more likely to reciprocate (Evans et al. 2011) and that higher trust will lead to more time committed to successfully share complex new knowledge (Lane et al. 2001). However, reciprocity associated with trust has been shown to have mixed result towards knowledge sharing (Wang and Noe 2010). Whereas Bock et al. (2005) found that reciprocal relationships affect individuals' attitude to sharing knowledge in repositories; Wasko and Faraj (2005) found no significant relationship between one's

contributions in electronic networks of practice and their expectations of reciprocity. Regardless, in relation to organizational cultural norms surrounding reciprocity, a common belief should be fostered that knowledge is a corporate resource which must be shared to gain insights and solve problems for the benefit of all (Evans et al. 2011).

In this research, interpersonal trust is expected to play a major role as the informal aspect of knowledge sharing being studied implies that employees are choosing to do so of their own free will from a willingness to help others. Paroutis and Al Saleh (2009: 60) identified that while trust is a prerequisite for knowledge sharing within Web 2.0 technologies, the tools also reinforce general trust to make it self-perpetuating, assisting employees build stronger networks. Additionally, affective trust in knowledge sharing via social software has two primary types: benevolence-based trust where the knowledge sender believes that the seeker will not misuse the knowledge and will reciprocate in turn; as well as competence-based trust where the seeker has confidence in the sender's ability and expertise to share reliable knowledge of value (Paroutis and Al Saleh 2009). Therefore, it's expected that a knowledge worker's relational motivation to use an ESSP's tools will increase if they perceive a higher level of trust between themselves and the other employees contributing within the same tools.

Overall, further support for the social aspect of knowledge sharing is alluded to in Alavi and Tiwana's (2003: 104) statement that "effective knowledge management in organizations involves a combination of technological and behavioural elements." Therefore, it is of utmost importance for a firm to balance the implementation of technological tools with an understanding of the factors influencing the human operators' social interactions within an ESSP's tools in order to enhance their adoption and usage (Chatti et al. 2007: 408). This leads to the next section of the literature review which will analyze the influence of technological factors in informal cross-border knowledge sharing via an ESSP's tools.

2.4 Technological Factors Influencing Knowledge Sharing

Hansen et al. (1999) emphasized that companies should manage their knowledge using the approach most suited to their needs, either through technological automation or

people mechanisms. Furthermore, it is important that technological tools are embedded into an organization's social networks to foster social capital as "socio-technical studies usually focus on the continuous interactions between IT, people, the organizational context and the negotiation taking place during the design, implementation and use of IT." (Huysman and Wulf 2006: 43) Although the socio-technical perspective offers a way of achieving joint optimization between social and technical factors for example regarding the implementation of wikis (Kosonen and Kianto 2009), it is also important to note that the perspective proposes that social software tools are only complementary tacit knowledge transfer mechanisms as technology on its own is an insufficient mechanism (Panahi et al. 2013: 393).

Given this study's focus on knowledge worker adoption of an organization's enterprise social software platform's (ESSPs) tools, throughout the last three sections of the literature review; numerous examples have been provided using the multitude of existing research on the adoption of technology for knowledge sharing. However, this section will take a step back and provide the reader with an overview of the subject starting with the history of technology's role in knowledge management, forwards to today's adoption of ESSP's by organizations for the benefits provided as well as difficulties encountered. This is concluded with a summary of the individual employee adoption issues both known and unknown as they apply to a knowledge worker's usage of an ESSP's tools for informal cross-border knowledge sharing.

2.4.1 History of Technology's Role in Knowledge Management

Ever since knowledge management (KM) came to the forefront of strategic thinking in the 1990's, in both practice and academic realms the logical connection has been made to utilize information technology (IT) as a mechanism with which to enhance inter-organizational knowledge sharing across great distances. Early on, technology was primarily used for KM purposes either in the form of standalone IT tools or integrated software support systems which are now classified as "conventional KM systems" (Fulk and Yuan 2013:20). Alavi and Tiwana (2003: 114) classified IT tools associated with each of the following knowledge management process: creation (e.g. collaboration

support systems), storage and retrieval (e.g. repositories), transfer (e.g. communication support systems), and application (e.g. expert systems). This work touched upon the important role of information communication technologies (ICTs) in both explicit and tacit knowledge sharing but only scratched the surface when compared to the technological advances in global social communications made over the past decade.

Technological advances then led to the rise of organizations employing learning management systems for formal knowledge management (e.g. training and development), while using conventional KM systems for informal unmanaged learning (Grace and Butler 2005). However, the limited success of conventional KM systems, due to their still overly formal approach to an inherently informal interpersonal activity led towards the development of systems incorporating more social aspects (Fulk and Yuan 2013). An ever-increasing shift was then made from traditional computer-mediated communication tools (e.g. email, teleconferencing, intranets, and instant messaging) to social media technologies (e.g. blogs, wikis, social networking sites, and social tagging tools) which are more popular today (Treem and Leondardi 2012). Of particular importance for this research is the social role played by conversational technological tools (e.g. discussion forums and wikis) in supporting communication and collaboration for the purpose of knowledge sharing (Wagner and Bolloju 2005). Regardless of the KM system implemented, these systems are valueless if organizations are unable to mitigate the downsides of employee IT adoption issues (Baptista et al. 2010) or acquire a detailed understanding of the social context within the knowledge transfer processes in order to enhance a KM system's utilization (Lee et al. 2007).

2.4.2 Enterprise Social Software Platforms for Knowledge Sharing

Prior to going forward it is first important to clarify some of the terms that have been adopted for this research. Although the definitions and classifications of software deemed "social" and the variety of platforms which support them are numerous, non-restrictive, and occasionally conflicting; the following review will help the reader to comprehend the terminological choices made in this study.

In an article promoting the integration of knowledge management with learning management, Chatti et al. (2007) presented a social software driven approach to knowledge sharing and learning which leveraged networks via the rise of Web 2.0 technologies. They defined social software as “a tool for augmenting human social and collaborative abilities, as a medium for facilitating social connection and information interchange and as an ecology for enabling a system of people, practices, values and technologies in a particular local environment (Coates 2003)” (Chatti et al. 2007: 415) Furthermore, social software has been found to enhance an organization’s knowledge base through recording knowledge worker contributions which aid other solution seeking employees in obtaining relevant knowledge (Zhang 2012).

The term Web 2.0, made popular by Tim O’Reilly, refers to the proliferation of individuals interacting and collaborating online resulting in highly customized user-generated content through social web tools (aka social software) such as wikis and group-messaging (re: discussion) boards (O’Reilly 2005). These tools allow users to create, revise, comment, and/or provide the ability to link to other content creators (Kaplan and Haenlein 2010). Social web tools are coming closer to replicating the nuances of social interactions in communication and collaboration over distance which has led some to believe that the effective sharing of tacit knowledge through technological mechanisms is becoming a reality (Panahi et al. 2013). However, an issue for MNCs with these social tools is the 1% rule of internet culture wherein 1% of users are creators generating new content, 9% are synthesizers editing content, and 90% are consumers only viewing content (Horowitz 2006).

In the application of these tools within businesses, Andrew McAfee (2006) coined the term Enterprise 2.0 to represent the emergence of collaborative online spaces within firms in which employees can share their knowledge. The rise of firms adopting these social software tools has lead to the creation of a variety of platforms for enterprise social software in which a community of users exist within a company-based online environment wherein they can freely choose which tools to utilize for knowledge sharing. While organizational intranets have been considered static and one-directional in the past, with the incorporation of enterprise social software functionality, they are

moving closers to becoming social or collaborative intranets. An example of which is Microsoft's SharePoint 2013 which offers multiple social software tools for knowledge sharing and encourages user adoption through demonstrating each tool's value in achieving enhanced effectiveness in job performance (Caravajal et al. 2013).

This study defines an enterprise social software platform (ESSP) as an integrated electronic platform upon which internal communication and social interactions occur, encouraging collaborative employee-created content within a range of social software tools (e.g. social networking, wikis, discussion boards); which are then recorded, stored and available for reuse by all employees; the outcome of which is informal knowledge sharing across borders (McAfee 2006; Kügler et al. 2013: 3636; Leonardi et al. 2013: 3). These platforms provide opportunities for social learning through the persistent knowledge which is captured and visible to everyone within an organization at all times (Treem and Leonardi 2012). This decreases the amount of effort required by knowledge workers to locate information and sources of knowledge in terms of metaknowledge (re: knowledge regarding 'what' and 'whom' other employees know) (Leonardi et al. 2013). As such, the focus of this study is on social software technologies used for communication and collaboration to afford informal cross-border knowledge sharing opportunities to knowledge workers through the adoption and usage of user profiles, wikis, and discussion boards.

2.4.3 Knowledge Sharing using User Profiles, Wikis, and Discussion Boards

Within the domain of enterprise social software exist a number of social software tools of which the aforementioned three tools are this study's focus and will be discussed in greater detail below as well as in the research methods section. A distinction must first be made between tools which are synchronous (e.g. videoconferencing) and are associated with sharing tacit knowledge, and the three focal tools which are asynchronous and more strongly associated with explicit knowledge. Furthermore, Panahi et al. (2013: 384) has helped in the categorization of IT-assisted social software tools wherein wikis and discussion boards are classified as asynchronous IT-assisted tools for the creation and sharing through externalization of tacit to explicit knowledge.

Currently the most researched of the three tools is enterprise social networking systems (including user profiles) which combine the openness of networking communities with the organizational objectives of knowledge sharing (Fulk and Yuan 2013). This tool has been strongly linked to the aforementioned social capital formation and reinforcement benefits such as reaching further and building stronger organizational ties (Steinfield et al. 2009). While the benefits of enterprise social networking are varied and widely accepted, see Turban et al. (2011) for a more detailed discussion of the opportunities they afford and associated adoption difficulties. Oft described benefits of social networking tools include the visibility of one's associations which provides users with the ability to easily identify experts through user profiles (Dugan et al. 2008; Turban et al. 2011), building stronger bonds with one's weak ties (DiMicco et al. 2008), as well as providing the opportunity for self-presentation of one's own expertise via strategic posting within all the social software tools tied to one's user profile (Treem and Leonardi 2012). Additionally, Singh et al. (2009) used game theory to model social media network contributions of voluntary users to design incentive mechanisms which exploit the selfishness of rational users.

A wiki is classified as a group conversational social interaction tool which continuously builds enterprise knowledge through the internal collaborative editing of linked web pages wherein knowledge senders can contribute by incrementally editing existing pages of others or creating new pages from questions asked indicating a knowledge gap (Wagner and Bolloju 2005). Similar to the aforementioned 1% rule of internet culture, Majchrzak et al. (2006) classified corporate wiki users as adders (adding pages for utilitarian purposes), synthesizers (reorganizing content for novel solutions), and commenters (making small corrections); while also finding perceived user benefits to include making work easier, enhancing one's reputation, and helping improve work processes, respectively. Wiki's have been associated with affording knowledge senders the ability to externalize their tacit knowledge through writing it down, as well as afford knowledge seekers the ability to internalize explicitly written knowledge through reading (Panahi et al. 2013). While numerous studies have researched wiki adoption and success factors (e.g. Grudin and Poole 2010; Yates et al. 2010), a frequently cited article found that unwillingness to contribute to a wiki comes from: 1) a reluctance to share

specific information (e.g. due to the extra cost of using the tool), and 2) a heavy reliance on alternative tools to achieve the same function (Holtzblatt et al. 2010).

One of the earliest and simplest collaborative technologies, discussion boards (aka forums or bulletin boards) are conversational in that the majority of the knowledge creation and sharing within them occurs through a discussion process between users consisting of questions and answers in a threaded format (Wagner and Bolloju 2005). Discussion boards have been found to bridge the gap between knowledge senders and seekers through sharing either personal or collective experiential knowledge in addition to explicit-based knowledge which can aid in benchmarking best practices (Curran et al. 2009). While allowing knowledge seekers to find answers or information provided by expert sources; this tool also enables knowledge senders to reinforce their expert reputation in the view of the entire MNC through the visibility of the conversation. However, no research was identified regarding the adoption or use of discussion boards by knowledge workers within this study's specific context. This leads to a discussion of the broader benefits and difficulties associated with ESSPs for knowledge sharing.

2.4.4 Technological Benefits and Difficulties for Knowledge Sharing

It has been previously discussed that an individual's behavioural actions are a direct result of their attitudes and intentions, wherein they will be more motivated to adopt a behaviour if they perceive that they are able to actually achieve their desired benefit from the action as well as observe others engaging in the same behaviour. Additionally, it has been established that the benefits afforded by social software tools are varied, numerous and directly linked to the specific individual's perceived objectives regarding what each tool affords its user the opportunity to accomplish. Compared to older technologies, wiki's and social networking tools were found by Treem and Leonardi (2012) to provide the affordances of: visibility (re: making one's behaviours and knowledge visible to everyone), persistence (re: contributions are accessible after being made), editability (re: time and effort spent crafting the communication), and association (re: making connections between individuals and/or their contributions). As such, it follows that a knowledge worker will utilize social software tools more

frequently if they perceive unique affordances associated with each tool. The affordance perspective's application to knowledge sharing has been established via multiple research studies such as in addressing the challenges of using social software tools (e.g. Fulk and Yuan 2013) as well as in proving the value of social networking tools for knowledge sharing within distributed organizations (Ellisson et al. 2015).

Despite the numerous benefits of applying technology to the field of knowledge management, IT-based knowledge management systems have come under criticism for their ability to only share codified explicit knowledge. Critics such as Roberts (2000) have argued that tacit knowledge will not be transferrable via non-people mechanisms until an IT system has been developed which creates a "Shared Space" or social environment (Panahi et al. 2013). Contrary to the difficulty of knowledge sharing via technology, Roberts (2000: 439) also proposed that as a substitute to face-to-face interactions, utilization of ICT's may be more effective for users who experience socialization via technology from a young age.

Although a commonly occurring criticism is the 'richness' issue of media bandwidth inferring transferring higher context communication to be more difficult via technology; Klitmøller and Luring (2013) found that rich media is most effective for sharing equivocal knowledge when there is high cultural context differences and that leaner media is actually better for canonical knowledge or when there are large differences in a shared language. An additional difficulty with codified explicit knowledge solely located within conventional KMSs is that it increases the likelihood of knowledge being transferred outside of the organization to potential competitors. As such, Argote and Ingram (2000) argue that knowledge should be embedded within the sub-networks that involve the combination of people (members), processes (tasks), and technology (tools) so that the knowledge repositories are more compatible for internal transfer than external. This helps avoid the paradox of replication (Kogut and Zander 1992).

Although the benefits of an ESSP's tools for knowledge sharing associated with social capital theory were outlined earlier; these technological tools may also bring the following difficulties for each of Nahapiet and Ghoshal's (1998) three dimensions:

weaker structural ties as employee's interact very infrequently within a low bandwidth medium; limited shared cognitive ground across borders both functional (re: technical terminology) and regional (re: language and cultural); and trust development issues between employees who have never met in person.

As technology adoption is one of the greatest difficulties and most heavily researched areas of information systems (Venkatesh et al. 2003), the next section will provide an overview of some of the models which have been applied to explain user adoption of IT systems as they apply to knowledge worker adoption of an ESSP's tools.

2.4.5 Technology Acceptance Theories Applied to ESSPs

Contrary to McDermott's (1999) claim that technology can inspire but not deliver knowledge management, this study's focus on individual adoption requires a review of the literature on technological adoption due to its wide application and acceptance by a plethora of researchers in the fields of IT adoption and knowledge sharing (e.g. Kügler et al 2013). The first step requires organizational adoption of an ESSP to achieve the goals of internal knowledge sharing (e.g. communication across silos, enhanced innovation, and establishing networks of experts) (Richter et al. 2013). However, the most crucial success factor is combating the adoption paradox where organizational adoption does not directly results in achieving individual user adoption and usage of an ESSP's tools which requires influencing one's behavioural intention (Agarwal and Prasad 1998). One such applicable technology adoption theory, albeit with limited academic support, is the lazy user model. This model developed by Tétard and Collan (2009) suggests that when an individual has a clearly definable need to be solved, that they will adopt the solution, from the variety of those available constrained by their user state (re: situation), which serves their need while requiring the lowest level of effort.

Foundational research into information technology acceptance was conducted by Davis (1989) wherein he applied the theory of reasoned action (TRA) to develop the technology acceptance model (TAM). At its core, TAM has two scales which determine self-reported user acceptance: the first and antecedent being 'perceived ease of use' (re:

belief that using a system is free from effort), and the second yet more important being ‘perceived usefulness’ (re: belief that system use enhances one’s job performance), given the logic that a tool with no usefulness will not be adopted regardless of how easy it is to use (Davis 1989).

With the objective of more effectively explaining IT usage behaviour via behavioural intention, Venkatesh et al. (2003) evolved the field of technology adoption research through consolidating eight models (e.g. TAM, TPB, innovation diffusion theory) into the unified theory of acceptance and use of technology (UTAUT). This empirically tested theory advocates four key constructs (the first three of which are direct determinants of use intention and behaviour while the fourth is only a direct determinant of use behaviour) and four significant moderators of key relationships (i.e. age, gender, experience, and voluntariness). The four constructs, each of which is rated on “the degree to which an individual believes or perceives”, are as follows: performance expectancy (re: using the system will help attain job performance gains), effort expectancy (re: ease associated with using the system), social influence (re: important others believe the user should use the system), and facilitating conditions (re: existence of organizational and technical infrastructure supporting the system). This research also found that user self-efficacy, anxiety, and attitude towards use of technology were not supported as direct determinants of intention. (Venkatesh et al. 2003)

UTAUT has a proven history of application in the study of international business and management as well as specifically in studying the adoption of Enterprise 2.0 technologies. Heikkilä and Smale (2011) demonstrated the qualitative application of UTAUT’s four constructs to study the acceptance and use of e-HRM systems in analyzing the effect of language standardization. While more specifically aligned to this study, Dapper’s (2007) quantitative research results demonstrated that UTAUT can be used to estimate Enterprise 2.0 user acceptance.

Despite not using UTAUT, one of the closest research projects to this study is the work of Kügler et al. (2013) which is currently quantitatively researching the factors which influence an individual’s adoption behaviour of ESSP’s through combining innovation

diffusion theory with social capital theory. Kügler et al. (2013: 3636) argue that when studying employee acceptance behaviour of collaborative technology in enterprises it is required to combine the theoretical foundations of individual, social (re: organizational context), and technological factors. This perspective has developed from past research lacking one of the three theoretical foundations. This study aims to fill the research gap by analysing the three groups of theoretical foundations to determine the influential factors through exploratory research guided by the heuristic framework outlined next.

2.5 Heuristic Framework of the Study

This literature review mapped what is both known and unknown to the field of international business and management regarding the factors which influence a knowledge worker's adoption and use of an ESSP's tools for informal cross-border knowledge sharing. It has done so through a critical review of existing literature divided into the following groups of factors which have an effect on an individual's knowledge sharing behaviours: individual (e.g. attitude and motivation), social (e.g. organizational context and social capital) and technological (e.g. technological benefits and adoption). The following heuristic framework visually depicts the literature review which informatively guided the development of the research methodology adopted to study the phenomenon of interest without restricting analysis (Figure 1).

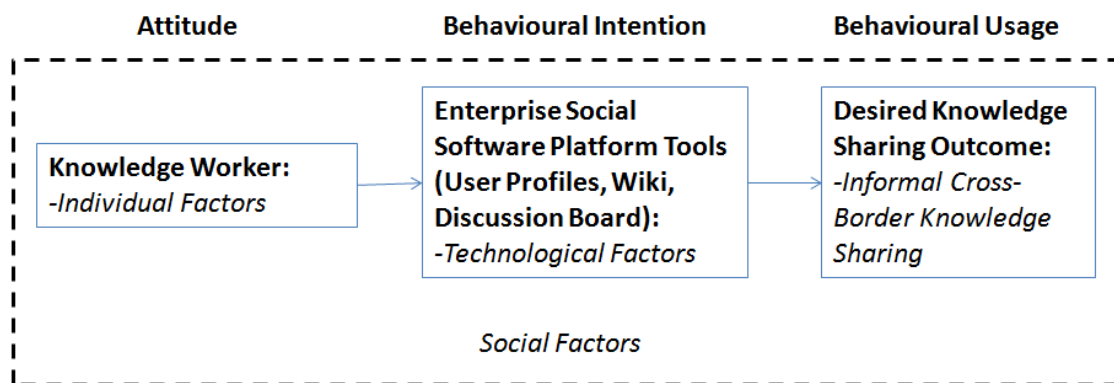


Figure 1. Heuristic Framework.

The heuristic framework suggests that an knowledge worker with a positive attitude towards knowledge sharing shaped by individual factors will adopt and utilize an ESSP's tools for the activity of informal cross-border knowledge sharing, dependent on how their behavioural intention is influenced by social and technological factors.

2.6 Literature Review Summary

This critical literature review has revealed a lack of combining individual-level factors with social-level factors to the existing technological adoption theories directly applied to a knowledge worker's utilization of an enterprise social software platform's (ESSP's) tools for informal knowledge sharing across borders. Specifically, no research was found regarding analyzing the factors that influence a knowledge worker's willingness (re: behavioural intentions) and contributions (re: behavioural usage) to informal cross-border knowledge sharing via ESSP tools within a large manufacturing company.

Although social capital has been used extensively to analyse knowledge sharing in the past, this research is unique in that ESSPs provide a setting in which informal knowledge sharing can occur outside of formal group or team boundaries. Rather, organizational objectives of ESSPs are to aid in expert identification, share experiences, and spark innovation through enhanced informal communication and collaboration via knowledge sharing outside the bounds of formal team dynamics(re: informal). Overall, this original research is highly relevant and will contribute to the fields of international business and knowledge management by addressing the aforementioned existing research gap. The research methodologies section to follow will address the means by which the researcher studied this phenomenon to answer the research questions.

3 RESEARCH METHODOLOGY

This chapter of the thesis describes the research method utilized in the study. It begins with a presentation of the research strategy adopted to fit with the research questions provided earlier. This is then followed by the data collection method applied and a discussion of the data analysis process with which the study achieves quality through validity and reliability.

3.1 Research Approach and Strategy

The following research approach and strategy was adopted for its ability to answer the research questions and empirically solve the research problem within the confines of the study's limitations (Saunders et al. 2009). First and foremost when determining the research design and strategy, the research philosophy of the author must be taken into account. Subjectivism and social constructivism play a defining role in this research given the importance in understanding that it's the interactions of social actors which produce reality (2009). This leads to adopting interpretivism wherein the "differences between humans in our role as social actors" is understood by the researcher (2009: 116). However, given that the subject matter is individual knowledge sharing behaviours via technological mechanisms, the philosophy is also pragmatic in that the research design was dependent on the aforementioned research questions and objectives' requirement for exploratory research to illuminate the answers.

3.1.1 Exploratory Research

Exploratory studies provide a researcher with the ability to clarify their understanding of a problem through assessing a phenomenon in a new light to seek new insights and find out 'what' is happening (Robson 2002). Given the exploratory nature of the research question and objectives, the abductive approach was employed in order to further develop upon existing theory by "continuously moving between the empirical and model world" (Kontkanen 2014: 11). This approach was selected as theory already exists regarding individual motivations for knowledge sharing, usage of social software

tools for knowledge sharing, and user adoption of technology; however, no theory exists within the specific context of this study and as such, conducting fully explanatory research to establish causal relationships between variables was neither feasible nor appropriate. Additionally, exploratory research offers the advantages of being adaptable to change, particularly in the analysis stage in light of surprising insights which appear from the data, and assists in focusing the research as it progresses (Saunders et al. 2009).

While exploratory research aims to identify new concepts which can be tested in the future when limited studies exist (Collis and Hussey 2003); explanatory research helps by including theories from more mature research fields (e.g. knowledge sharing, social capital, technology adoption) to clarify how the concepts are related (Yin 2003). As this research harnesses both an exploratory and explanatory approach, the literature review was developed to discuss applicable theoretical concepts which are known as well as areas which are unknown in the field of knowledge management. Each section of the literature review was developed abductively from iteratively moving between an analysis of the data collected and the existing literature on the subject.

While the deductive approach aligned with explanatory research provided assistance in the early research stages to capitalize on existing theoretical frameworks; the inductive approach aligned with exploratory research allowed for new insights to emerge from the data collected (Collis and Hussey 2003). In this study, the literature review began with a deductive critical assessment of individual knowledge sharing motivations and the role of social factors in the activity of knowledge sharing to explain knowledge worker behaviour, but after initial data driven analysis, an additional review of technological adoption theories was conducted to assist in explaining the research findings and inductively build an integrative framework. It follows that this study has leveraged and combined existing theories in new ways in the identification of an original concept construed from the data to be tested in future research (Collis and Hussey 2003).

As the focus is on understanding employee adoption and usage of three specific social software tools, individuals are the unit of analysis in this study and not the organizations

in which the phenomenon occurs. However, this research cuts across the four interlinked layers of knowledge sharing's social aspect described by Mäkelä (2006:44-45) of: 1) individual (e.g. one's attitude and motivation to share knowledge), 2) relationship between interaction partners (e.g. social capital dimensions), 3) immediate relationship context (e.g. informal knowledge sharing across borders), and 4) overall interaction context of the dispersed MNC (e.g. within an enterprise social software platform's tools). This is supported by Wang and Noe's (2010: 127) statement that "phenomena such as knowledge sharing do not reside within one level of analysis but rather are hierarchical, which necessitates an examination across levels to capture their complexity (Klein and Kozlowski 2000)." The overarching focus becomes analyzing the factors that influence an individual knowledge worker to leverage social capital through utilizing the context of the ESSP's tool for informal cross-border knowledge sharing. This focus has been built into the study with the aim of answering the research questions; the findings of which were used to inductively develop an integrative framework through combining the previously reviewed existing strands of knowledge sharing theories with the original data collected. This process required the development of a qualitative research plan that would provide a rich data set.

3.1.2 Qualitative Semi-Structured Interviews

It follows from this study's research questions being non-quantifiable "what" questions, the exploratory nature of the study, and the individual being the unit of analysis; that qualitative research in the form of semi-structured interviews was selected as the most suitable research method. Qualitative research allows individuals to meaningfully attribute their opinions and experiences to the situations in which they operate "through investigating feelings, attitudes, values, perceptions or motivations, and the state, actions and interactions of people, groups and organizations." (Maylor and Blackmon 2005: 144)

Through the use of open-ended questions, non-standardized semi-structured interviews provided the researcher the ability to understand 'what' and 'how' the phenomenon occurred with a stronger emphasis on exploring 'why' it occurred through identifying the respondents reasons for their attitudes and opinions (Cooper and Schindler 2008).

This allowed for the collection of a rich and detailed set of data enabling deeper insight into the subject through providing the freedom and time to explore the respondents' experiences, while affording the researcher the opportunity to concurrently clarify possible misunderstandings (Marshall and Rossman 1999). Qualitative semi-structured interviews were applicable for this research as they provided the depth of response required to understand first-hand the attitudes and behavioural intentions of a knowledge worker resulting in their usage of an ESSP's tools. Furthermore, as the aim of the research was understanding an individual's perceptions towards behaviour, Howard (1994) argues that self-report measures are most appropriate for studying human behaviour. In this case, interviewees' discussing their perceptions of their own attitudes, intentions and behaviours.

Wang and Noe (2010: 126) support the use of infield qualitative research in studying the activity of knowledge sharing within a rich organizational context given that in their review article they found approximately one-third of the research used qualitative "interviews, observation, and/or archival documents analysis to answer their research questions... An important strength of the studies reviewed was that the majority were conducted in a field setting." Further support has been provided for using qualitative interviews by Paroutis and Al Saleh (2009) who used them for researching determinants of knowledge sharing using web 2.0 technologies, and Heikkilä and Smale (2011) who applied them to a conceptual framework of UTAUT in studying individual user adoption of e-HRM systems. This leads to a discussion of the manner in which this study applied semi-structured interviews to collect data for analysis.

3.2 Data Collection

As briefly introduced in section 1.2 (Research Problem), this study has conducted inductive primary research within the confines of a large manufacturing company (henceforth 'the case company') currently using an enterprise social software platform (ESSP) for the purpose of global knowledge sharing. This case company provided an appropriate research setting in which to analyze the factors associated with the phenomenon of interest. Although the research has taken place within one case

company, it is not a case study despite its fit with Robson's (2002: 178) definition as "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence". It is not a case study in that the research places no specific significance on the case company as it is only one possible context in which the commonly occurring phenomenon exists. Therefore, this is a semi-structured interview study wherein the unit of analysis is the individual, including their perceptions, motivations, and behaviours demonstrated through tool contributions. As such, interviews provided the rich research data with which analysis allowed patterns to emerge based on the similarities and differences between interviewees' responses. Finally, given the time limitations of this research and its exploratory nature, the data was collected at one moment in time to provide a cross-sectional study of the phenomenon (Saunders et al. 2009).

This study also used multiple-method qualitative research (Saunders et al. 2009) wherein multiple initial unstructured in-depth interviews with the case company representative provided the opportunity to: 1) explore and formalize the research problem within the context of a specific company, 2) acquire a deeper understanding of the tools within an ESSP and their organizational purpose, 3) assist with the selection of interviewee candidates fitting with the research method, and 4) verify the validity of the interview questions. This was followed by exploratory semi-structured interviews with nine of the case company's knowledge workers which use an ESSP's tools for informal cross-border knowledge sharing.

This study required the following stages within the data collection process: 1) finding a case company in which to study the phenomenon, 2) selecting interview candidates fitting the study's criteria, and 3) developing an interview guide which allowed data to be collected revealing the factors of interest.

Selection of the Case Company and Three ESSP Focal Tools

Since the main objective of the interviews was to collect data from a variety of knowledge workers regarding their adoption and usage of an enterprise social software

platform's (ESSP's) tools; the setting of a single case company was selected in order to provide a shared technological context ensuring consistency and comparability across responses. The case company was selected based on the following criteria to achieve quality through representing a context in which the phenomenon being studied had been acknowledged (re: validity) and the data could be collected without bias (re: reliability). The case company was selected as representing a typical case wherein a knowledge-intensive organization had implemented an ESSP with the desired outcome of enhancing informal knowledge sharing across borders. Furthermore, the large manufacturing case company selected is a MNC with numerous subsidiaries abroad; heightening its need to share knowledge across borders and therefore rely more on technological tools to bridge the gap when face-to-face communication is not economically viable. The case company required at least three tools to study within its ESSP, such as: an enterprise social network system, blogs, wiki's, RSS feeds, instant messaging, or discussion boards. Finally, to achieve research feasibility, the case company was selected as it supported the collection of background information on its ESSP and granted access to its knowledge workers as interviewee candidates.

Although there are many ESSP solutions available to organizations; within the case company, SharePoint 2010 was the social intranet ESSP providing the context in which the three tools of focus selected were: user profiles for enterprise social networking, a globally accessible wiki and a centralized global discussion board. The ESSP is accessible to all of the case company's employees located globally, acts as the home page of all internet browsers, and provides a single platform wherein all its tools are integrated and searchable for the purpose of enhanced communication and collaboration aiding in knowledge sharing across borders both functional and geographic.

The user profile tool provides social networking functionality wherein employees can: create profiles of their competences, tasks, and interests; share content; add 'colleagues' with whom they can interact via posting comments or notes; and follow 'objects' of interest with tags or likes. The user profiles provide the ability to enhance informal communication across the organization between employees with little direct contact. The wiki is an organic collaboration tool wherein all employees are promoted (through

general guidelines) to contribute by sharing their knowledge in the form of abbreviations or terminology (in English) specific to the case company through linked pages either by: adding and filling in new pages with accurate and reliably referenced non-redundant content; asking questions by creating new pages; or editing existing pages. This tool provides the ability to informally collaborate through explicitly combining one's knowledge with that of other employees. The centralized global discussion board is of focus as it is promoted to all employees as a guideline-free tool to foster knowledge sharing within the case company through affording the ability to informally ask questions and encourage non-obligatory feedback sourced from the combined knowledge of the global internal workforce. This tool promotes both informal communication and collaboration with all employees in the distributed organization.

Note that to retain the anonymity of the case company, these tools and the SharePoint 2010 platform, they will be henceforth known throughout the remainder of the thesis as: the user profile, wiki, discussion board, and the platform or the case company's ESSP, respectively. These three tools were selected for their association with informal knowledge sharing as they afford both individual and organizational performance benefits by promoting enhanced communication and collaboration in social interactions with other employees outside the confines of formal work groups and teams.

Interviewee Candidate Selection

One of the ways of conducting exploratory qualitative research is through interviewing 'experts' in the subject (Saunders et al. 2009). Within the context of this study, an expert is an individual user of an ESSP's tools, regardless of the extent to which they use the tools. As the research question is knowledge sharing analyzed from a negative framing of problem detection to answer 'Why does knowledge sharing not happen when expected?'; answering this question required a comparison of interviewee candidates with varying levels of usage for each tool (ethically chosen and handled). The goal of which was to understand the multitude of factors influencing adoption and actual behavioural use of the focal tools. Therefore, a cross section of users (re: "semi-users") of the three focal tools were selected as ideal

interview candidates by the case company's representative based on purposive sampling interviewee selection criteria provided by the researcher (2009).

The cross section called for a variety of candidates fitting the following criteria: knowledge workers (in white collar positions) expected to actively collaborate (albeit to varying extents) in informal cross-border knowledge sharing (communication beyond collocated colleagues) using the ESSP's tools available (candidates must have been with the company at least one year, had prior opportunity to encounter all three tools, and used at least one of the three).

Knowledge workers were selected as the primary research candidates of interest given the case company's identified problem regarding this employee group's reluctance to using social software tools despite the potential value of their contributions. This was supported by the existing knowledge management literature in that many studies focus on knowledge workers as research subjects (e.g. Bock et al. 2005). However, similar to Paroutis and Al Saleh (2009), the knowledge workers selected could potentially be any employee within the organization regardless of their specific position or role, the only exception being that the case company had identified the employee as an expert knowledge worker with either the expectation or possibility to share using the tools. This resulted in interview candidates being selected from all functions (e.g. engineering, administration, R&D) and levels (e.g. both managerial and operational).

Sixteen candidates meeting the selection criteria were contacted by the case company representative of which nine volunteered to be interviewed, providing this study's convenience sample. Within the nine, five were located in Vaasa, two located further away in Finland (Helsinki and Turku), and two located abroad (Switzerland and the Netherlands). Although face-to-face was the preferred interview method due to its ability to establish a greater level of trust and comfort between the researcher and subject; video-conference interviews were substituted in cases where distance was an issue as they provided greater communication bandwidth compared to phone calls (Saunders et al. 2009).

A description of the interviewees backgrounds will now be provided while not attributing specific traits to the individuals to retain their anonymity. Within the nine interviewees, five were Finnish with the other four coming from the following nationalities: Dutch, Swiss, Swedish, and Italian. All interviewee's have been with the case company for at least three years with at the least 6 months in their current role, and five have been with the company for over fifteen years. With the exception of one interviewee, all were male. There was no overlap between interviewee roles, functions, or departments within the case company. On a general level, the interviewees were divided into two grouping with six employees holding management positions (i.e. general or senior managers in: operations, strategy, cyber security, communications, and development) and three in operations positions (i.e. executive assistant, engineer, and solution architect).

Finally, the interviewees were classified into two groups based on whether or not usage of the ESSP's tools was perceived to be mandatory (four interviewees) or voluntary (five interviewees) for their role. It is important to note that mandatory users present a possible source of biased responses as they are system: promoters, key users, developers, or owners. Additionally, each interviewee contributed to at least one of the three focal tools, although currently used to varying extents for various purposes. In summary, three were actively using the user profile, three were occasionally using the wiki, and all nine were actively using the discussion board.

Interview Questions

A semi-structured interview guide and questions were developed to assist in achieving consistency across the interviews. The guide is included in the Appendix. This guide was developed to provide some structure to the interview's through ensuring that the all three interview themes and fourteen primary questions were answered. The thirty-one probes were developed to elicit further responses from the interviewees regarding the subjects of interest; however, the exact wording of these questions varied slightly or a probe was entirely omitted based on the interviewee's prior responses. Given the conversational nature of the research and the applicability of the questions to each interviewee, it was also at the researchers discretion to omit questions or vary their

order to fit the conversation's flow (Saunders et al. 2009). This also involved steering the discussion in the right direction when the interviewee's deviated too far from the relevant research issues (Easterby-Smith et al. 2008). The following table provides the interview themes and respective insights sought (Table 1).

Table 1. Interview Themes and Insights Sought.

Interview themes	Insights sought
Background and interviewee's knowledge perception	Determining background attitudes of knowledge sharing behaviours and individual perceptions of the organizational context.
Interviewee's use of the three focal tools and their social interaction relationships	Determining self-reported usage behaviour and perceptions of influencing social factors such as those with whom one is interacting in the tools and the influence of the interviewee's manger.
Motivational drivers and inhibiting barriers	Determining attitudes and intentions to use the tools derived from positive and negative user experiences.

The interview questions were compiled with the goal of answering each of the research questions, as such, the three interview themes were each directly tied to the three research sub-questions to ensure that all responses would be relevant to this research. However, the questions contained within the themes also encouraged a great deal of openness to ensure that interviewees were free to provide unexpected answers which could be of significant interest. Overall, the questions were designed to garner the interviewee's attitudes, intentions, as well as behaviours associated with each of the three focal tools with the aim of identifying the influencing factors at each stage.

Prior to beginning the questioning, a positive atmosphere was created through informal small talk to assist the interviewee in becoming relaxed and more open to share their experiences. Additionally, an opening interview information statement was read to set the tone of the interview as well as help focus the interviewees' mindset towards the topic of informal cross-border knowledge sharing. The opening statement did not explicitly mention ESSP's or their tools as the focus of the research; the aim being to discover if they would be mentioned unaided during the initial discussion of informal cross-border knowledge sharing. Given that the term 'knowledge sharing' is fairly ambiguous, interviewees were asked to think of this in terms of: 'contributing',

‘collaborating’, ‘communicating’, ‘sharing ideas’, ‘exchanging experiences’, ‘answering or asking questions’, ‘problem solving’, or ‘providing or receiving advice’. To further assist the respondents, ‘knowledge sharing’ was occasionally replaced in the interview by ‘communication’ and ‘collaboration’ as these terms are often associated with knowledge sharing (e.g. Panahi et al. 2013; Kügler et al. 2013). While the term ‘informal’ was defined in the interview as being ‘work-related but not within formal teams’, the term ‘cross-border’ was left intentionally ambiguous to receive responses regarding borders being both geographic and between organizational units or silos.

The interview data collection process was conducted between January 13th and February 6th 2015 with each interview lasting between 55 and 100 minutes. Although the interviewee’s native languages were Swedish (4), Finnish (2), German (1), Italian (1), and Dutch (1); all interviews were conducted in English after confirming the respondents English language proficiency to ensure mutual understanding during the discussion. The interviews were then transcribed verbatim into 273 pages of text which included handwritten additional notes made by the researcher during the interviews. After the ninth interview it became apparent that the saturation point had been reached in that recurring patterns had been identified and little new data was acquired. It is at this point that the discussion will turn to the data analysis process.

3.3 Data Analysis

It is important to first note that the objective of the data analysis was to develop an integrative framework which would explain the findings associated with this study’s exploratory research. As such, the data required the valuable yet time consuming process of re-reading and reflection to cultivate a deep familiarization which aided in identifying underlying patterns, concepts, and key factors occurring across the interviewee’s responses (Maylor and Blackmon 2005). The goal of which was to enable a conceptual framework to emerge from the analysis (2005); the focus of which being defined by the fit of the data itself and not forced within the confines of any one existing theoretical model (Yin 2003). The emergent framework integrated knowledge regarding the phenomenon from multiple fields of study encapsulated

within contextual quotes from the data collected within this study to achieve research quality.

Given the richness and volume of data collected from the interviews, multiple data analysis techniques were employed simultaneously to arrive at the findings, discussion, and conclusions. Throughout the process of data collection and analysis, Kolb's learning cycle was applied for its ability to extract qualitative data to be analyzed from semi-structured interviews in studies related to knowledge sharing (Sniazhko 2011). This cycle begins with concrete experiences during the collection of the data followed by a period of reflective observation to become familiar with the data and assist in spotting patterns. This leads to abstract conceptualization to extract key concepts which are then actively experimented with to identify occurrences of the concepts and the emergence of patterns linked back to the original data collected (Maylor and Blackmon 2005). Within this cycle, content analysis was central for identifying and categorizing the emergent themes, aided by the development of a coding matrix using Miles and Huberman's (1994) three stage data analysis process. The first step of which was transcribing the interviews to aid in familiarizing the researcher with the data.

The interviews were recorded with two devices to provide a back-up in the event of unforeseen recording issues as well as to help with the transcribing process. Regarding the video-call interviews, the software was also used to record the conversation for additional clarity. During each interview, supplementary handwritten notes were made which aided in the process of capturing non-verbal cues and ensuring all questions were answered. Directly after each interview, additional detailed notes were made while the conversation was still fresh in the researchers mind. All interviews were transcribed verbatim within 24hrs to ensure maximum clarity and aid in the initial stages of analysis through early recognition and documentation of important themes, patterns, and relationships concurrently with the data collection process. The transcription process helped the researcher greatly with internalizing the topics discussed, as well as assisted in the content analysis process through simultaneously looking for and colour coding concepts and theories which

could explain the interviewee's responses. Throughout the interview process, a list was made of commonly occurring concepts to help identify similarities and differences across the interviewees for each of the tools. This was helpful in sorting out the valuable nuggets of data from the 273 pages of transcripts and identifying applicable aspects of existing theories.

Miles and Huberman's (1994: 12) three stages of data analysis is a concurrent process of data reduction, display, and conclusion drawing forming the iterative "interactive cyclical process" of analyzing the data collected. This required the interpretations of the researcher in analyzing the content objectively in order to articulate the central phenomenon by determining the factors influencing a knowledge worker's adoption and usage of the case company's ESSP tools (Wurtz 2014:19). Once all the interviews had been conducted, a matrix was developed whereby all interviewee responses could be easily compared to identify similarities of recurring usage patterns and illuminate the factors that differed between interviewees which could explain their usage behaviours.

Therefore, a coding matrix was selected as the ideal form of data display wherein the interviewee data was first reduced to codes which were associated with categories allowing for a visual cross-comparison to identify evident patterns and form conclusions that could be verified (Miles and Huberman 1994: 239). Reduction is the continual process whereby the data is selected, focused, simplified, abstracted, and transformed into patterns with the aim of organizing the data to prepare it for conclusions to be drawn (1994: 12). The difficulty of data analysis in this qualitative research was in uncovering and presenting the meaningfulness of the data without stripping it of the context which provides its value (1994). The data was first reduced by highlighting key themes in the transcripts with different colours so that future re-reading allowed the recognized themes to be illuminated without removing them from their context.

Categories were then developed as they appeared in the data assisted by combining overlapping existing theoretical frameworks from each of the literature sections

reviewed. For example, the category perceived valued outcomes (PVO) was first construed from numerous interviewee's describing their perception of a specific tool's value, then combined with: individual motivation theories (e.g. achieving valuable benefits), social organizational theories (e.g. outcome expectations: benefits and rewards), and technology adoption theories (e.g. performance expectancy and perceived usefulness).

As it is the words meanings that matters in qualitative interview research, codes were then formed from 'unitizing' chunks of data including words, phrases and direct verbatim quotes (Saunders et al. 2009); allowing for labels which assigned units of meaning to descriptive information (Miles and Huberman 1994: 56). An example of coding used in this analysis was "PVO-MOT-POS" indicating that the data chunk referred to a positive motivator associated with an interviewee's perceived valued outcome derived from a specific tool. This indicated a potential determinant which was influencing an interviewee's behavioural intention towards the tool; which was then analyzed in conjunction with their self-reported use of the tool.

Once codes were developed within each category and applied to all interviews in the first matrix, a second matrix was then realigned into three factor groups (re: individual, social, and technological) with two categories each containing the determinant factors based on the codes. Prior coding allowed for data-retrieval where the number of interviewees mentioning a specific factor could be easily grouped together with their verbatim quotes (Miles and Huberman 1994). Conclusions in the form of relationships were then drawn from patterns in the number of interviewees mentioning each determinant and their associated intention and actual usage of each tool. This resulted in the findings and discussion sections which focus on verifying the inter-related six categories of determinants containing both motivational drivers and inhibiting barriers within the three groups of: individual factors, social factors, and technological factors.

As the research was exploratory with a small sample size, individual factors were not cross analyzed with the UTAUT moderators of gender, age, or experience: as the nine interviewees were mostly male (8/9), within an older age range (6/9 over 40), and most

had the same experience duration with the tools (8/9 started in 2006 or earlier) (Venkatesh et al. 2003). However, there was a split between those who use the system voluntarily compared to mandatorily (5/9 voluntary) and as such the findings used this as a contextual identifier in the quotes.

In the findings section to follow, quotes have been provided with a contextual descriptor of the interviewee (Manger- or Operations-level; Mandatory or Voluntary user of the tool) and social software tool or subject being described to provide credibility to the quote as well as ensure the interviewee's confidentiality is retained. This brings the discussion to the final section of the research methodology, achieving research quality.

3.4 Research Quality: Validity and Reliability

Contrary to quantitative research, qualitative research has inherent difficulties in demonstrating validity and reliability given the researchers proximity to the data collection and analysis processes (Saunders et al. 2009). This required the researcher to take steps to ensure that the data collected and analyzed was conducted with the ability to measure what they were intended to measure (re: answer the research questions) to achieve validity (Maylor and Blackmon 2012), while testing that the result are repeatable (re: avoiding subjectivity and bias) to achieve reliability (Bryman and Bell 2003). Furthermore, Golafshani (2003) states that in qualitative research, validity and reliability should be mutually treated through the encompassing terms of credibility (re: of the researcher to support their arguments), transferability (re: theoretical generalisability), and trustworthiness (re: of the researcher).

Validity

Validity in semi-structured interviews is the degree to which the researcher is able to infer the respondents proper meaning from their spoken and non-verbal cues to retrieve their true attitudes, knowledge, and experiences instead of succumbing to shallow impressionistic analysis (Maylor and Blackmon 2005). This was achieved through discussing the same issues from a variety of angles via probing questions to ensure that

clarification of the same meaning of both the question and the response was interpreted by both parties (Saunders et al. 2009).

Construct and internal validity was achieved through the initial meetings with the case company representative to ensure that the: 1) research problem existed within the company, 2) candidates selected were appropriate, and 3) interview questions addressed all issues of importance. Additionally, the first two interviewees were conducted and analyzed as pilot interviews (one in person and one via video-call) in order to determine the appropriate wording and question's ability to generate responses which would answer the research questions. This was achieved by completing a mini analysis with the responses of the first two interviews. It was found that minor alterations were required to the wording of a few of the questions but that overall the questions were deemed appropriate. Therefore, the pilot interviews retained internal consistency with the full sample and could be included in the analysis. These pilot interviews also identified the need for technology adoption literature to take a more commanding role within the literature reviewed and that there existed a divide between voluntary and mandatory users of the tools within the interview candidates which needed to be taken into account.

Validity was further ascribed by credibility wherein evidence from key quotes taken from multiple sources was presented to support all arguments derived from the interviewer's interpretations (Maylor and Blackmon 2005). This was achieved through rigorously following the data analysis method described above. Additionally, researcher credibility and trustworthiness was further established through interview preparation including background research of the topic literature, situation, and the company. This was assisted by the aforementioned development of the interview guide, providing the interviewee with the three initial interview questions in advance, and using an opening statement to clarify the research's objective. Together, these steps helped build trustworthiness in the interviewer-interviewee relationship to ensure that honest responses were provided for analysis.

As often the case when addressing external validity in qualitative research, no statistical generalizations can be made to the entire population (Yin 2003) or beyond this study's

research context (Bryman and Bell 2003). However, generalisability within qualitative research can be attained through allowing for the development of theoretical proposition which can be tested in another context with future research to support transferability (Saunders et al. 2009). In the context of this study, theoretical generalisability was achieved through the development of the integrative framework and by interviewing knowledge workers in a variety of roles and functions to ensure that the findings were not attributable to one specific area within the case company.

Reliability

Reliability in qualitative research is concerned with the extent to which similar results would be revealed by alternative researchers (Easterby-Smith et al. 2008); however, a critique of this perspective is that situational changes do not allow qualitative research to be repeated in the exact same complex and dynamic circumstance in which it previously occurred (Marshall and Rossman 1999). Regardless, reliability is primarily achieved through avoiding research biases assisted by rigorous documentation of the research design and justification of the research strategy choices (Saunders et al. 2009). Recording the interviews which were immediately transcribed further reinforced the process with which this study was transparently documented to achieve reliability.

Steps were taken to avoid bias's occurring: when developing questions (e.g. leading questions) and asking questions (e.g. tone or behaviour); in interviewee's responses (e.g. showing only 'socially desirable' self); as well as in the researcher's interpretations of the data collected (Easterby-Smith et al. 2008). Leading question biases were avoided through the use of open-ended questions and interviewer behavioural neutrality resulted in reduced questioning bias (Easterby-Smith et al. 2008). Although the sampling method restricted research subjects, the selection criteria ensured that the correct volunteers were identified and the opening interview confidentiality statement reduced 'socially desirable' responses. Reliability in achieving robust conclusions was also possible through transcribing notes immediately to remove subjective interpretations so that the data was: traceable (to source which was coded), reliable (recorded immediately), and complete (all field notes included) (Maylor and Blackmon 2005).

4 FINDINGS

An integrative framework was devised from a detailed content analysis of the responses from the nine interviewees combined with a review of the relevant literature. It's development assists in answering the research question through identifying the factors which influence a knowledge worker's willingness (re: attitudes and intentions) and contributions (re: behavioural usage) to social software tools for informal cross-border knowledge sharing. An overview of the behavioural usage of each tool will be provided first to assist the reader in following the interpretations of the findings and framework.

4.1 Behavioural Usage Overview

In assisting with framing the findings section, the actual behavioural usage of the three focal tools will provide an understanding of the tools current adoption levels. Usage behaviours have been classified differently for each of the three tools and take the form of either seeking knowledge within the tool through reading, or sharing (re: sending) knowledge via making different types of contributions within the tool. For the user profile, individuals can share knowledge by updating their profile or they can seek knowledge by adding colleagues and reading other's profiles. Regarding the wiki, employees can share knowledge by adding or editing pages and can seek knowledge by reading the pages of others. And finally, regarding the discussion board, one can share knowledge by answering questions or seek knowledge by either asking questions or reading the discussion threads. The below Table 2 provides the nine interviewees self-reported usage associated with each of the tools for the purpose of informal cross-border knowledge seeking or sharing.

Table 2. Summary of Focal Social Software Tools Behavioural Usage.

Tool	Type of Usage	Knowledge Seeking or Sharing Behaviour	Number of Interviewees Mentioned (9 total)
Whole Platform	Reading	Seeking Knowledge: for news to stay current with the organization	9 find knowledge in the platform, 5 mentioned 'the platform' unaided
User Profile	Own Profile	Sharing Knowledge: updating information about one's interests,	8 filled out the profile at first, only 2 actively using

		skills, and know-how competences	now
	Colleagues Added	Seeking Knowledge: adding colleagues which may provide useful knowledge	5 have added colleagues, only 2 actively still adding
	Reading Colleagues' Profiles	Seeking Knowledge: identifying common background or expert competences	7 read in the past, only 3 actively reading now
Wiki	Reading	Seeking Knowledge: learning unknown terms or technical knowledge	3 occasionally reading
	Add	Sharing Knowledge: contributing terms or work processes	3 have added pages, only 2 still adding
	Edit	Sharing Knowledge: collaborating with others to improve the knowledge in the page	1 editing own team's pages, 0 editing others pages
	Not Using	Not actively seeking or sharing knowledge within the tool	6 described no experience with the tool
Discussion Board	Reading	Seeking Knowledge: following interesting topics, questions related to own work, or seeing shared issues employees are experiencing	9 are actively reading
	Asking	Seeking Knowledge: specific questions to solve problems or open questions to acquire ideas	5 asking specific questions, of which 1 also asked open
	Answering	Sharing Knowledge: providing opinions, role-specific replies, or suggesting experts to ask	7 answering with varying frequency

This table demonstrates that although all nine interviewees are using the whole platform to some extent for seeking knowledge, the only tool being actively used by all of the interviewees for both seeking (n=9) and sharing (n=7) knowledge is the discussion board. Whereas the majority of respondents (n=8) suggested trying the user profile early on and then discontinuing usage; the wiki appears to have never been adopted by the majority (n=6) of the interviewees at any point. The integrative framework will attempt to explain the factors influencing the interviewee's self-reported usage behaviour.

4.2 Integrative Framework Overview

The integrative framework identifies three groups of influencing factors being individual, technological, and social; while following the theory of planned behaviour

regarding an individual moving from attitude, to intention resulting in behavioural usage. The framework has been provided below to assist in the reporting of the findings and emergent themes (Figure 2) (Maylor and Blackmon 2005).

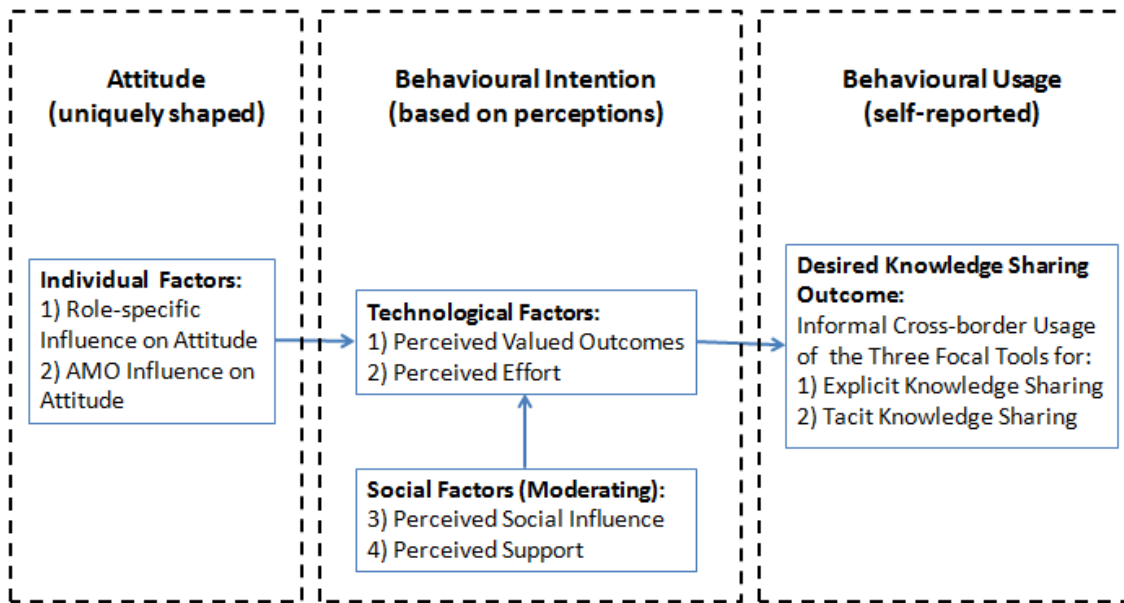


Figure 2. Integrative Framework.

It is important to first note that none of the three factor groups or specific determinants analyzed are attitudes or intentions in and of themselves; rather, they only influence one's attitudes and intentions in degree and direction, resulting in changes in behavioural usage. The three influencing factor groups are represented by the boxes in the centre and on the left side of the framework, with the characteristics of the desired knowledge sharing outcomes represented by the box on the right. Within the three groups are influential factor categories with specific determinants mentioned in the interviews and categorized loosely based on adapted literature from: individual attitudes to knowledge sharing, organizational knowledge sharing theories (Wang and Noe 2010), social capital theory (Nahapiet and Ghoshal 1998), and the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al. 2003). The arrows indicate the relationship interconnectedness of the factor groups. As depicted, a user's attitude towards knowledge sharing is uniquely shaped by individual factors which influences the factors related to intention towards the behaviour using an ESSP's tools.

Their intention is then strongly influenced by their perceptions of the technological factors related to the specific tools which are moderated by the user's perceptions of the social factors; resulting in either behavioural usage of the tool or not.

Only an individual holding a positively motivated attitudinal disposition towards the behaviour of knowledge sharing shaped by their role and AMO factors will look to the tools available to aid in this activity. Next, the user must perceive a valued outcome associated with the purpose of the tool which will result in their initial intention to use the specific tool. Once the value is perceived, the user will attempt to use the tool at which point they begin to perceive the level of effort required to utilize the tool for their desired purpose. If they encounter difficulties with the tool or find that alternative tools offer the same valued outcome but with reduced effort, then they will not adopt the tool. If the tool is perceived to be valuable and low effort, then they will contribute to either seeking or sharing explicit or tacit knowledge within the tool provided.

This process is moderated by the two social factors of: perceived social influence and perceived support. Regarding perceived social influence, a user's intention (re: both value outcome and effort) is effected by the perceived use of the tool by 'important others'. Given the social nature of the tools which require interactions between users to provide value, a significant part of the value associated with the tool derives from it being actively used by other employees; this component of interactivity is reflected by reaching critical mass. Additionally, the influence of social capital is at work within these tools in terms of the reinforcing impact of trust, shared cognitive ground, and the structural know-who associated with informal weak ties.

In regards to perceived support, the organization needs to be identified as being at least partially knowledge-intensive in the department in which the employee works. Furthermore, an employee's intention to utilize the tools for knowledge sharing is moderated by their perception that the organizational culture is supportive of knowledge sharing both with the tools and in general. Understanding the valued outcome associated with each tool is moderated by management support in terms of demonstrating the purpose of the tools and promoting their proper usage. While the perceived effort in

using the tools is moderated by a user believing there to be a technical support infrastructure which reduces the effort required to achieve the valued outcome.

In the event that the influencing factors assist an employee successfully moving from a positive attitude, to intention, to behavioural usage; the organizations desired outcome will be achieved in that the knowledge worker will actively exploit the tools to improve work performance while making contributions within them which reinforce their value for all employees. As each of the three tools offer's unique knowledge sharing benefits, their valued outcomes will result in different forms of knowledge sharing. In most cases, the knowledge sharing contributions within the tools was limited to explicit codification of experiences in the form of short text, as complex tacit knowledge sharing was found to require 'going offline' via a higher bandwidth channel.

As the framework has now been outlined at a theoretical-level, the findings section will proceed with explaining each of the above factors and relationships in more depth supported by verbatim contextual quotes selected from the nine interviews. It should be emphasized that while existing theory and frameworks combined with the data provided the overall structure of the findings, the categories within the structure and their determinants emerged directly from the analysis of the data. The findings are presented as they relate to the integrative framework starting with attitude, followed by a detailed analysis of the four categories of factors which influence behavioural intention; concluding with a summary and the behavioural usage knowledge sharing outcomes.

4.3 Attitude

An employee's attitude towards informal cross-border knowledge sharing using the three focal social software tools was found to be shaped by two categories of individual factors. Attitude being uniquely shaped first by role-specific factors followed by one's personal AMO factors. Where one's overall attitude towards knowledge sharing then influenced the technological factors related to intention to utilize the tools provided.

4.3.1 Role-Specific Influence on Attitude

Related to an employee's attitudes towards knowledge sharing using these social software tools, it was found that a positive attitude was strongly influenced by the four role-specific factors of: 1) self-identifying as a knowledge worker, 2) feeling one has useful knowledge and experiences to share, 3) holding a role as mandatory user of the tools, and 4) holding operational- or expert-level positions in the organization.

First and foremost, all interview candidates (n=9) self-identified their role as that of a knowledge worker, indicating that knowledge-related work was a significant part of their job. This was found to provide an overall positive attitude towards the activity of knowledge sharing in that their role required searching for and sharing knowledge.

"Most of it [my work] is indeed knowledge work, where I need to generate idea or to let's say, work with other people to get ideas from them and try to elaborate on them." (Manager-level, Voluntary user)

Building from one's knowledge worker role identification, an interviewee's perception that they have useful knowledge or experiences to share was found to be a role-specific factor heavily influencing their positive attitude towards knowledge sharing. Mentioned by seven employees, this factor appears to be highly aligned with the valued outcome of feeling that one's contributions will be used by or useful for other employees.

"I have taken part in certain discussions on discussion boards, yes when I have felt that I have a valuable contribution....I have something to contribute with. Being able to share real information." (Manager-level, Voluntary user)

This effect goes both ways wherein if the user doesn't feel that they can make a valuable contribution then they will not utilize the tool. In particular, one interviewee strongly supports this relationship in the following quotes wherein they express why they use the discussion board but not the wiki.

"First of all maybe the topics [in the wiki] haven't been such topics that I can get a type of topic or content where I felt I could make a good contribution." (Manager-level, Mandatory user, speaking about the wiki)

“If I feel like there is, hey guys, this I know better and you should probably be aware of this or that and this is not the way of doing it. Then of course I post an answer or recommendation.” (Manager-level, Mandatory user, same as above, speaking about the discussion board)

One of the most significant role-specific factor's found which influenced attitudes towards using the social software tools was the perception that tool use is mandatory verses voluntary. It is important to note that some responses from mandatory users may carry biases given that an aspect of their job is directly tied to these tools; however, these quotes also shed light on the organization's attitude and viewpoint of how the tools could and should be used. Four out of the nine respondents have been labelled as mandatory system users in that they identified their role as requiring the use of the platform and it's tools to some extent. As such, these users demonstrated stronger positive attitudes than voluntary users as tool use was associated both with formal in-role 'official' behaviour and informal knowledge sharing.

“‘The platform’ in general, is absolutely essential. It’s an everyday tool...One day without ‘the platform’ and it would be really difficult...” (Manager-level, Mandatory user)

“Quite little we do actually about this informal cross-border communication. At least from my side I don’t use it for that. Cause it’s more “official” channel.... the ‘platform’, is more purpose for the official business communication, we don’t do informal there, except the ‘discussion board’ though...I need to as my role, the area of responsibilities. When the questions [in the discussion board] touch that I, I want to help put there, official answer.” (Operations-level, Mandatory user)

The other five interviewees have been classified as voluntary users as they indicated no requirement to use these specific tools to accomplish their work. These interviewees mentioned that their managers have no specific requirements regarding their use of these social software tools; rather, that the employee's utilization is entirely dependent on selecting the right tool for the task at hand. Although these tools may aid in performing specific tasks or acquiring knowledge associated with their role, their utilization is regarded as extra-role behaviour not key to the employee's job. Therefore, their attitudes towards using these tools were not as positive as that of mandatory users.

“It’s kind of my choice what kind of channels I’m using and he’s [manager] probably not aware....he don’t cares how I make my connections it’s about that I get the answers....he trusts as well that I’m using an appropriate tool for what I need.” (Manager-level, Voluntary user)

Furthermore, three respondents, all of which were managers, stated that one’s attitude towards knowledge sharing in general is heavily influenced by their function within the organization. It was found that attitude towards knowledge sharing is more open and informal at the operational- or expert-level of the organization, whereas politics come into play at the managerial-level which could restrict an individual’s attitude and motivation towards openly sharing their knowledge.

“I don’t know if it’s the company culture of ‘the case company’ or if it’s a general phenomena that in big companies you even get internal competition between business lines... I would say the knowledge sharing internally, the informal one works best on an expert level... anyway I would say that the trend is clear that the experts, subject-matter experts, they are much better at sharing than management in general.” (Manager-level, Voluntary user)

“Normally on the operative level its very cooperative, very open and very helpful for each other. So even if it’s not their responsibility, people try to help. Things change a bit when you’re on a management level because then the politics takes place.... Given that politics are involved, you still have a lot of people who are collaborating effectively and open.” (Manager-level, Voluntary user)

This leads to an analysis of an individual’s AMO factors on shaping a knowledge worker’s attitude towards the behaviour of informal cross-border knowledge sharing using an ESSP’s tools within the context of an MNC.

4.3.2 AMO Influence on Attitude

Building upon a knowledge worker’s four role-specific factors shaping one’s attitude towards informal knowledge sharing using an ESSP’s tools; an individual’s attitude was found to also be strongly shaped by a second category containing the three AMO factors related to one’s personal: 1) motivation, 2) opportunity, and 3) ability. First, a knowledge worker was found to require personal motivation to pursue the activity (e.g. acquire needed knowledge); then they would assess the mechanisms affording the

opportunity to achieve their desired outcome (e.g. the ESSP's tools); and finally, they would reflect on their ability to achieve their desired outcome using the chosen mechanism (e.g. self-efficacy). Combined, one's AMO factors shaped their attitudinal disposition towards knowledge sharing positively or negatively which influenced the technological factors related to intention to use an ESSP's tools.

Motivation

As a knowledge worker's role was associated with the need to acquire and share knowledge; their attitude was influenced by their motivation to achieve a specific desired knowledge outcome. For example, improving work performance through ease of finding "needed" knowledge to accomplish a work task. As such, a knowledge seeking individual was found to first identify a need to acquire information that they did not already possess within themselves. Common needs were related to knowledge required to: solve a problem, generate innovative ideas, or identify an expert.

"I need to get data and information from them [colleagues] and I need to stimulate them to generate ideas and different way of approaching problems." (Operations-level, Voluntary user)

It is important to note that there would be no perceived valued outcomes associated with any social software tool if it were not for an underlying need that motivated a knowledge worker to form a positive attitude towards knowledge sharing and then search for a mechanism with which to fulfil that need. As such, the attitudinal role of motivation is central to the identification of perceived valued outcomes.

Opportunity

Once a knowledge worker's initial attitude towards knowledge sharing was motivated by a need; they then evaluated the alternative mechanisms offering the opportunity to satisfy that need (e.g. acquire knowledge). This is a particular challenge associated with large geographically dispersed MNCs compared to smaller firms as building metaknowledge (re: knowledge regarding 'what' and 'whom' other employees know) is

crucial to completing work tasks for knowledge workers wherein knowledge sources can be located globally.

“The challenge is to identify knowledge and decision people. So in a complex and unknown organization, that’s always the first challenge to connect the right people together to be able to do some actions.” (Manager-level, Voluntary user)

When one does not have the required knowledge, the employee often will turn to their network to find an expert with the know-how to assist them. Nearly all interviewees (n=8) discussed the importance of building and using one’s network of colleagues and friends for the purpose of informal knowledge sharing. Where in the event that one doesn’t have a large network, they will then develop a more positive attitude towards using social software tools as they cannot as readily rely on their network to contain all of the knowledge connections required to carry out their work tasks.

“We [colleagues] ask each other advice whenever we have a problem or whenever we need to know something about another business or if we are solving a problem. And I think that’s a big part of our job, to have a network, to ask.” (Operations-level, Mandatory user)

“...you get a network of people, and you get to know them. What kind of know-how they have. Know-how expertise skills.” (Manager-level, Voluntary user)

“...if you're a new employee who doesn’t have the network, if you don’t know who knows the things you need to know” (Operations-level, Mandatory user, describing when an open enterprise social approach is required)

If the required knowledge is not within one’s network, then their attitude towards using the tools for knowledge sharing will be positively influenced as they will provide the opportunity to satisfy this need. However, this is only the case if the tools have a high degree of knowledge-holder interactivity and are understood by the knowledge worker to afford this opportunity. Regardless if the opportunity to share exists within one’s network or is provided by the tools, the final factor influencing attitude towards sharing relates to one’s own ability to share their knowledge.

Ability

The last individual factor influencing attitude is one's perceived ability to actually share their useful knowledge with others regardless of the mechanism. Their ability to do so is influenced by: 1) feeling like they have useful knowledge to share, 2) feeling connected to those with whom they share, 3) that the mechanism is capable of sharing the desired complexity of knowledge, and 4) that the individual has the technical skills required to operate the tools without issues. As such, one's attitude was found to be negatively shaped when they didn't know the other party, were required to rely on a lower bandwidth channel, and didn't have self-efficacy in the ESSP's tools.

Related to one's ability to informally share knowledge across borders, the importance of knowing colleagues personally (re: their backgrounds and goals) cannot be understated as all nine interviewees mentioned this point. Personally knowing those with whom one communicates was found to positively influence one's attitudes towards sharing knowledge with others by: helping in building trusting relationships, developing shared cognitive ground, and assisting with knowing where expertise lies within the company. As such, the interviewees were found to have a more positive attitude towards the ESSP's tools if they understood that the tools afford the ability to get to know their colleagues more personally (e.g. acquiring background information from the tool).

"I would say also this informal way of communicating involves some level of trust as well. So it's not only finding the experts and in the certain topics or subjects, but you also have this social relation in the background that makes it kind of easier to reach out to certain people, than to others." (Manager-level, Voluntary user)

Furthermore, related to the mechanism most positively associated with knowledge sharing, most interviewees (N=6) mentioned that face-to-face communications was the ideal method for informally sharing knowledge as there are limitations on one's ability to do this with social software tools which often have distractions, lack an informal discussion aspect, and are unsuited to sharing complex tacit knowledge.

"I think that is a big challenge because you're not going to book a virtual meeting as quickly as you meet someone during a lunch or in a corridor or at a coffee machine. And you're not going to book just informal meetings in a virtual meeting." (Manager-level, Mandatory user)

"In some cases we do virtual or online meetings and that always works ok. And when it's needed, we do face-to-face which usually works the best." (Operations-level, Mandatory user)

Overall, a knowledge worker's personal motivation was found to influence the perceived valued outcomes that they most readily associate with each social software tool. While their opportunity requiring use of the tools was influenced by their personal network and was related to the social factors of perceived social influence and perceived support. Finally, one's ability influenced the strength of the positive attitude towards using tools with which they were most comfortable as indicated by their self-efficacy; influencing their perceived effort. Hence, an employee's motivation, opportunity, and ability shaped their attitude positively or negatively towards knowledge sharing and using social software tools. Therefore, the AMO factors were found to build off of the role-specific factors in shaping a knowledge worker's attitude towards the knowledge sharing activity which influenced how they perceived the technological factors associated with behavioural intention resulting in behavioural usage.

4.4 Behavioural Intention

The four categories clustered within the two groups of factors (re: technological and social) which influence an employee's behavioural intention have been loosely adapted from the four key constructs of Venkatesh et al.'s (2003) unified theory of acceptance and use of technology (UTAUT). Given the social nature of the social software tools in question and their application to informal cross-border knowledge sharing; the four categories have been adapted to include specific aspects found in the interviewees' responses as well as from the literature associated with: knowledge sharing using Web 2.0 technologies (Paroutis and Al Saleh 2009), an individual's knowledge sharing motivational factors (Wang and Noe 2010), and the dimensions of social capital (Nahapiet and Ghoshal 1998).

As each category was developed from the interviewee's own perceptions of their intentions and their responses are not verified by actual documented usage behaviours, the term "perceived" has been affixed to each category. The four categories are as follows: perceived valued outcomes, perceived effort, perceived social influence and perceived support. The first two categories have been classified as technological factors as they are directly associated with each of the specific tools and are both required to result in behavioural usage; perceived valued outcomes being motivational drivers and perceived effort as potential barriers. Whereas the social factors play a moderating role in that the higher degree to which they are present for each tool was found to result in a greater intention to utilize said tool by either increasing the perceived value outcomes motivators or decreasing the perceived effort barriers. The following four sections will outline each category in detail beginning with a description of the specific determinants within and providing supporting contextual quotes from the interviews.

4.4.1 Perceived Valued Outcomes

This section outlines the perceived valued outcomes as described by the interviewees; however, it is important to note that each of the outcomes are influenced by the social factors outlined in the social sections of the findings. Perceived valued outcomes are associated with: performance expectancy regarding attaining gains in job performance from tool usefulness (Davis 1989; Venkatesh et al. 2003: 447) and perceived outcome expectations of individual benefits (Paroutis and Al Saleh 2009) associated with tool affordances (Treem and Leonardi 2012). The following Table 3 is provided to assist the reader in following each of the perceived valued outcome determinants connected to the individual factors; most strongly of which being an individual's motivation.

Table 3. Summary of Perceived Valued Outcomes.

Applicable for:	Determinants	Tool Applied to:	Number of Interviewees Mentioned (9 total)
All Users	Unknown Purpose / Value	Mainly wiki, some user profile	6
	Different Affordances of	Related to all tools within the	4

	the Tools	platform	
Knowledge Seekers	Finding Information	Mainly the discussion board, some user profile, little wiki	9
	Knowledge Repository	Whole platform	4
	Time and Effort Saving	Only discussion board	7
	Feedback Provided	Only discussion board	8
	Shows Shared Problem	Only discussion board	5
	Global Audience Reach	Only discussion board	4
	Innovative Idea Collaboration	Only discussion board	2
	Expert Identification	Discussion board and user profile	6
Knowledge Senders	Knowledge Found Useful by Others	Mainly discussion board, 1 wiki mention	7
	Helping Others	Mainly discussion board, 1 user profile mention	7
	Being Identified as an Expert by Others	Discussion board and user profile	4

Perceived valued outcomes was found to be the first and most important of the four categories associated with a social software tool. This is due to the fact that regardless of if an employee is a mandatory or voluntary user of a social software tool, they will not waste their precious time and effort on a tool for which they do not perceive there to any work performance benefit either in the capacity of a knowledge seeker or sender (Davis 1989). This was demonstrated by the majority of the interviewee's (n=6) mentioning not knowing the purpose of a tool for which they were not using, or in the cases of the purpose being known, the value not clearly seen. This was particularly related to the wiki and user profile tools which had very limited actual usage compared to the discussion board.

"I actually don't use it [user profile]. I simply don't use and um, I am not able to say what is really the potential of that tool actually." (Manager-level, Voluntary user, non-user of the user profile)

"I don't think maybe the need or value has been shown [of the wiki]." (Operations-level, Mandatory user, non-user of the wiki)

Although a valued outcome must be perceived for an employee to intend on using it, they are not necessarily the same for every employee as each social software tool affords different benefits depending on the role and desired action motivating the user (Treem and Leonardi 2012). In particular, individual factors such as the job-fit with an employee's role (re: management or operational) further differentiated the benefits valued by the user (Venkatesh et al. 2003).

“I would somehow see that people are using these tools differently. Some are let's say heavy users, but some are not contributing at all.” (Operations-level, Voluntary user, discussing the whole platform)

The valued outcome determinants will now be subdivided into those specifically associated with knowledge seekers (re: reading, asking or searching with the tools) compared to knowledge senders (re: adding to or editing wiki pages, answering questions, or actively updating one's profile). With the exception of two interviewees who were only knowledge seekers (both managers and voluntary users), all respondents belonged to both groups.

Knowledge Seeker Valued Outcomes

For knowledge seekers, the perceived valued outcomes were: acquiring unknown information, using the platform as a knowledge repository, saving time and effort, receiving feedback, highlighting a shared problem, reaching a global audience, innovative idea collaboration, and expert identification. The primary valued outcome for all nine interviewees was to acquire information with the aim of solving a specific problem or informally browsing to find information which might be of interest for the future. It is interesting to note that this was also the only valued outcome partially associated with the wiki (n=1).

“You could share a lot of knowledge and solve a lot of problems if you used these [tools] more actively.” (Operations-level, Mandatory user, describing the value associated with the tools)

“...I mean in the first place, I don’t care if I get answers from a ‘platform’ page, from a wiki page or if I get a hint that somebody may, as a person, may be able to help me.”
(Manager-level, Voluntary user, speaking about the whole platform)

Related to using the social software tools as a valuable source of knowledge, four interviewees alluded to the platform as a knowledge repository wherein its value is associated with the ability to find and store knowledge for reuse.

“I am expecting certain information to be in ‘the platform’. I’m pretty sure other people expect that too... We use it merely as an information storage, information bin, rather than an interactivity bin because the interactivity is obtained elsewhere.”
(Manager-level, Mandatory user, discussing the use of the whole platform)

Using the social software tools to achieve savings in time and effort in their work performance was a significant outcome valued by the majority of the interviewees (n=6). This finding was directly associated with the value provided by informally asking questions in the discussion boards to solve a problem when the required knowledge holder is not within one’s personal network. This was particularly the case when employees compared the extra time and effort required to go through official channels such as the Helpdesk instead of using the discussion board to solve their problem.

“That is maybe the difficulty pretty often, and where we are using a lot of, how would I say, time and effort to find the person who can answer this question....the ‘discussion board’ might sometimes, you know, shorten the time to get the answer or right person.”
(Operations-level, Voluntary user, discussing the value of the discussion board)

“Instead of going through the official channels of the global helpdesk where you need to send an email, they issue a ticket and then you get on the queue and then god knows when they will call you and blah blah blah, you know. All the processes. It’s so much easier to just write a question there [discussion board] and normally by the day after you have already some help. It might solve or not the problem but you get at least some feedback already.” (Manager-level, Voluntary user, discussing the value of the discussion board)

Eight interviewees strongly related the valued outcome of time savings to the requirement that feedback on one’s contributions is provided which will either give the

seeker an answer to their question or at least a direction in which they can find the required knowledge. Again, this was specifically noticed in the value associated with the discussion board, with feedback seen as lacking in both the wiki and the user profile.

"People usually, a lot of people have the right answers, they just post it immediately. Problem solved." (Manager-level, Mandatory user, actively reading and answering questions in the discussion board)

Furthermore, feedback visibility was also directly associated with an increased confidence in one's ability to use the tool and as mentioned by two interviewees, directly resulted in their future contributions to the discussion board for either asking or answering questions.

"I couldn't say 100% [problem solved] but at least I got some feedback and not always was I really able to solve my problems but at least I got some ideas... noticing that people is answering and trying to support and very often solving issues, not only my issues but you know when I read some discussion there and I notice that problem get fixed. Of course I get a good confidence that if I get some problem, I can use that tool." (Manager-level, Voluntary user, actively asks questions in the discussion board)

Another valued outcome associated directly with the discussion board is that it highlights shared problems that exist within the company. This is beneficial in not only increasing efficiency by answering a question only once but can also be used to make improvements to organization wide issues effecting the entire MNC.

"I think it's the whole approach to the crowd sourcing of the problems. Making visible, let's say, that quite many probably have the same problem. You ask the question you get the answer and everybody else does, checks it, see that, oh yeah, I have the same problem and that's the solution." (Operations-level, Mandatory user, actively answers questions in the discussion board)

Although some interviewee's identified the ability to reach a global audience with these social tools as a positive motivator, particularly for illuminating shared problems; a few

respondents (n=3) commented on the same factor as being a barrier which reduces an employee's desire to ask questions openly in the discussion board.

“Most of my questions are not of global ‘case company’ relevance. As the ‘discussion board’ is visible for each and every employee, I think only questions where everybody potentially can benefit from it should be asked there.” (Manager-level, Voluntary user, actively asks and answers questions in the discussion board)

“Talking to everybody in the company at the same time might make it more difficult.” (Manager-level, Voluntary user, describing the difficulty of using the discussion board)

One surprising finding of particular interest was that the discussion board isn't being actively used for informally asking open questions related to innovative idea collaboration. Despite this being identified as a significant benefit from the tool as mentioned by two interviewees, it appears that the vast majority of the questions in the discussion board are related to specific IT questions and that the wiki also demonstrated limited collaborative use (n=1).

“I haven't seen too many open questions like I did. But as I said the result was impressive I would say... I was asking for new innovations...and I got maybe 30 different answers and 2-3 of them which were really, actually lead to something. And, yeah I was happy. I was really happy about that. And actually I got a good feedback also that this is a good idea to ask this way.” (Operations-level, Voluntary user, discussing the value of the discussion board)

“I think it's everything that's put there [in the discussion board] is informal in the sense that they look for answer in some sense. There has been quite interesting cases put there where actually one was asking for ideas for some product, some project case, customer case, and there was also some posts, replies that suggest that they use that, our tool for innovation, we have a tool for that. He said ‘it's too closed’, that he wanted a informal way to you know, get ideas from here to there... I don't think it [the discussion board] should be only about problems, but it should also be about ideas. Knowledge sharing.... I think that's the essential part. What really can bring business value in the long term.” (Operations-level, Mandatory user, discussing the value of the discussion board)

The last valued outcome discussed by knowledge seekers (n=6) was using the tools to provide them with the opportunity to identify experts within the greater MNC but existing outside of their personal network. This benefit was associated with the

discussion board as well as was one of the only values attributed to the user profile; however, although some interviewees suggested that the user profile is ideal for expert identification, others criticised its ability to achieve this purpose.

“To identify key competences which could help me, for my specific issues. ...I simply type in a competence I’m searching in the ‘platform’ search and I retrieve...typically, if somebody adds it to the ‘tell me about’ section [of the user profile], I find the people through that search functionality. As a matter of fact it only happened twice or three times in the past 4-5 years or maybe 3 years that I was able to identify somebody who finally was really able to help me.” (Manager-level, Voluntary user, most active user of the user profile)

“So most often, the question goes directly to the, or we try to of course target the question directly to the expert. And sometimes it’s very difficult to find the expert if you don’t know who is dealing with that. But with the intranet, you can get really nicely the answer and I have got it several times directly and really nicely... most often it has been so that I don’t know exactly who to ask from. Who could answer this question? That has been the first thing. And that is maybe the difficulty pretty often, and where we are using a lot of, how would I say, time and effort to find the person who can answer this question. And it’s not really easy to dig it out from anywhere. I mean it could be somehow on ‘user profile’ or wherever but it’s really difficult to find out who knows about this. And then you have to rely on your internal network and ask first from, let’s say, your colleagues and then they might know somebody who knows. But let’s say, the ‘discussion board’ might sometimes, you know, shorten the time to get the answer or right person.” (Operations-level, Voluntary user, active-user of the discussion board but non-user the user profile)

Now the three valued outcomes described by knowledge senders will be presented.

Knowledge Sender Valued Outcomes

Knowledge senders discussed fewer valued outcomes compared to knowledge seekers as these individuals are often not deriving the benefits from sharing knowledge themselves; rather, they are providing the valued outcomes desired by knowledge seekers. The motivational outcomes described by senders are as follows: that the knowledge contributions are useful to others, that the sender enjoys helping others, and that the sender desires being identified as an expert (i.e. linked to one’s reputation).

There appears to be a relationship between the individual factors of an employee perceiving that they have useful knowledge and the ability to share their experiences, with the technological factor of senders perceiving that their knowledge is found useful to others. The only two respondents which didn't mention having either relevant knowledge to share or that it is found useful to others, were also the only two interviewees (both managers and voluntary users) whom do not answer questions in the discussion board and are among the majority of interviewees who don't contribute to the wiki. This indicates that an employee will only answer questions in the discussion board, and to a lesser extent contribute content to the wiki, if they perceive that they have relevant knowledge which is useful to others.

“On a personal level, I have to admit that it gives you some sort of good feeling, some satisfaction to see that these things of course are acknowledged and used and you can actually make a difference.” (Manager-level, Mandatory user, discussion board user describing why they will answer a question)

“I think if somebody finds the terms that I’ve added, so that's good because that the purpose. That people find it.” (Operations-level, Mandatory user, user of the wiki discussing the value of adding terms to the wiki)

The valued outcome of receiving the feeling of helping others is an intrinsic individual motivational factor which appears to be associated with an employee’s intention to contribute to the social software tools. Helping others was described by the majority of the interviewees (n=7) usually regarding answering questions in the discussion board.

“I think that's [discussion board] quite a powerful tool because really regardless if you are sitting in India, or Australia, or the States, we can really help each other and it doesn't really matter what is your background and so on. I mean it just allows really people with knowledge around that topic to give this contribution and help others... People feel engaged trying to give answers to help each other.” (Manager-level, Voluntary user, discussion board user describing why they frequently ask questions)

“This kind of questions somehow enforce that this informal helping each other gives as well some kind of human touch to the company itself.” (Manager-level, Voluntary user, discussion board user describing why they will answer a question)

The final valued outcome described by knowledge senders (n=4) was the desire to be identified by other's as an expert. Three interviewees perceived this outcome as a positive motivator for themselves, while one referred to employee's general hesitance in promoting their own expertise within the company. This outcome was associated primarily with the user profile, although it was indicated that the discussion board also provides this benefit and that it is linked to an employee perceiving that they have useful knowledge to share.

"If you just list the things that you deal with and you are expert in then it's easier if someone needs to ask you something, then they will find you. But if they don't know what you are doing, so they can't find you. And not everybody knows who to ask." (Operations-level, Mandatory user, discussing the reason for updating the user profile)

"By updating my own profile, I would like to give the opportunity that somebody else is finding myself as well through that channel." (Manager-level, Voluntary user, most active user of the user profile)

As previously mentioned, a tool's perceived valued outcome is only the first of the two required technological categories of determinants which influence an employee's behavioural intention and is strongly associated with individual factors. The second category, perceived effort, will be discussed next given that an employee will only use the tools available if they are able to function according to their valued outcome.

"...like all tools, if you are aware about the purpose of these tools, and then you are able to use it according to the purpose. And that they are useable according to their purpose. That implies somehow that the tools are beneficial so if you chose the correct screwdriver it helps you if you need the correct screwdriver...they are powerful tools and their value is according to the usage, so how people are contributing and how people are consuming it." (Manager-level, Voluntary user, speaking about the whole platform)

4.4.2 Perceived Effort

Perceived effort, the second category of determinants belonging to the technological factor group, is the degree to which an individual perceives that a specific tool is: 1)

capable of delivering the desired valued outcome with limited barriers, and 2) requires the least possible effort to achieve this outcome compared to alternative solutions. As such, this category includes the following influential determinant sub-categories: prior experiences of the user, effort expectancy in terms of the intuitiveness associated with ease of system use (Venkatesh et al. 2003: 450), perceived costs in time and effort (Wang and Noe 2010), and history in terms of familiarity with the old or established way of doing something using alternative tools (Paroutis and Al Saleh 2009: 57).

The perceived effort factors are not behavioural intention barriers in and of themselves as they are influenced by each individual's experiences and abilities. As such, they were not issues for all users but existed as potential barriers for some employees in the process of using the tools to achieve their perceived valued outcomes. These effort barriers were found to be particularly strong regarding the wiki and the user profile, and to a much lesser extent, the discussion board, which is reflected in each of the tools behavioural usage. The following Table 4 will assist the reader in following each of the perceived effort determinants connected to the tools and their perceived valued outcomes as well as the individual factors related to one's ability.

Table 4. Summary of Perceived Effort.

Effort Sub-Categories	Determinants	Tool Applied to	Number of Interviewees Mentioned (9 total)
Prior experience	Initial Experience with the Tool	Related to all tools within the platform	7
	Comparison to Contemporary Tools	Wiki and user profile	5
	Generational Issues	User profile	5
Intuitiveness	Complexity / User Friendliness	Related to all tools within the platform	9
	Search Functionality	Related to the platform itself and all tools within	7
	Information Pull/Push and Updates	Related to all tools within the platform	6
Time and Effort Costs	Too Busy to Use / Lot's of Time Required	Related to all tools within the platform	6
	Redundancy	Wiki and user profile	7

History	Alternative Tools	Related to the platform itself and all tools within	8
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Prior Experience

As this category requires user's to successfully operate the social software tools, adoption was first strongly influenced by the individual employee's initial experiences with these specific tools within the company, prior experiences with similar contemporary tools outside of the workplace, as well as their personal technological ability. Initial experiences either resulted in positive or negative perceived ability to achieve the valued outcomes for each tool and would directly impact the user's future intention to utilize a tool.

“Well, in some way yes they [tool experiences] did influence it [future contributions] but I think it influenced negatively because in those areas where contributions were done, or I do update something, yeah, you don't see really much value coming out of that.” (Manager-level, Mandatory user, discussing the negative prior experiences using the whole platform)

“I knew what the wiki was able to do before I came to the company. Then I've been made aware that there is a wiki functionality and as soon as I took over the team and I felt that we need a collaborative work construction collaborative tools, whatever, I chose the wiki as that's its purpose.” (Manager-level, Voluntary user, most heavy user of the wiki)

Furthermore, prior experiences with similar contemporary tools outside of the company can also have both positive and negative effects on perceived effort. Positive, as demonstrated in the above quote, wherein knowing the purpose of the tool assisted in reducing the effort required to utilize it correctly. Negative, in that comparing a tool with a contemporary standard can result in increased expectations of its functionality; and when not met, creates a feeling of extra effort required to accomplish the valued outcome.

“I see it [wiki] as a handicapped tool. And of course we all compare it to intuitive tools like the Wikipedia.” (Manager-level, Mandatory user, non-user of the wiki)

“I tried to have it working as I would expect any social media should work... Linking is one of the most used things today. You retweet, you link, you share. It’s just links everywhere. For link sharing and URL shortening, you would need to use an external tool today. You can’t use the ‘platform’ for it within the company. Because it’s not possible to tag external sites and then send the URL from the ‘platform’ to the internal stakeholders. The platform doesn’t support it.” (Manager-level, Voluntary user, stopped using the user profile after failed trial)

Although age as a moderator wasn’t analyzed, the majority of the interviewees (n=5) described generational issues as a reason for either themselves or their managers not having the technological familiarity to be aware of the valued outcomes associated with the social software tools available, or being comfortable using them (re: self-efficacy); in particular for the user profile.

“The older or less online generation whereas they are now getting retired... They are already quite good with the internet but nevertheless, as they are not using Facebook or LinkedIn or something or other social media platforms. They don’t realize or aware that you can maintain your network thanks to that.” (Manager-level, Voluntary user, most heavy user of the user profile)

Intuitiveness

When analyzing a user’s perceived effort associated with social software tools, the most important factor related to ease-of-use as indicated by all nine interviewees was the degree of tool complexity compared to user-friendliness. Ease-of-use has been given the overarching label of intuitiveness and is associated with the three interconnected factors of: complexity, search functionality, and push verses pull technology. Tool complexity relates to a users understanding of how the tool operates and their ability to operate the tools as expected free of technical difficulties. Despite a tool's purpose or valued outcome being recognized by the user, the user's intention will decrease if they encounter significant functionality issues such as tool complexity or difficulties; leading to non-usage behaviour. Each interviewee found both specific tools and the whole platform to either be simple or difficult based on their own experiences which led to either adoption or rejection of a tool, respectively.

“I don’t think there are any difficulties as such because they are very easy to use so sort of no technical difficulties for me at least.” (Operations-level, Mandatory user, active user of the whole platform)

“It [user profile] doesn’t do what it needs to do, simply enough. It’s just not simple enough. You have, it doesn’t come to you, the tool. You need to go somewhere, look for it and try to figure out how it works.” (Operations-level, Mandatory user, non-user of the user profile)

The below quote from one interviewee demonstrates the direct relationship between a tools perceived intuitiveness and its usage based on how the employee identified the user profile as being difficult to use and not adopting it, compared to the discussion board which was easy and is actively used.

“I think that as soon as they start being, let’s say, being uh, asking, requiring some time to understand how they work and how to set them up and so on. I mean I immediately lose my patience and just give up. And I’m not even interested because you know I don’t want to use my time for these things....I don’t see the value of the ‘user profile’ and anyway to my memory, it was not very quick and easy to use...” compared to *“I find it [discussion board] very easy to use and very informal.... you just go there, write, and that’s it.”* (Manager-level, Voluntary user, non-user of the user profile but active user of the discussion board)

Aligned with the knowledge seeker’s valued outcome of finding information, the intuitiveness of the entire platform is strongly tied to an employee’s perception of its search functionality. In this regard, an interviewee either used a specific tool or the whole platform more actively based on their belief that the search function was effective, and vice versa.

“There is even a search function for the ‘discussion board’ so before putting up your question you can actually search in the past discussions. That’s quite useful actually.” (Manager-level, Voluntary user, active user of the discussion board)

“I mean the searching so that the intranet pages themselves. That you think about a key word, you search for a key word and then you start to find information or contacts.” (Manager-level, Voluntary user, most heavy user of the user profile and wiki)

Finally, six interviewees mentioned intuitiveness being associated with the degree of work that a user is required to exert in pulling the information they desire to themselves, particularly in the form of updates shown in the user profile. Also linked to contemporary tool equivalents, employee's expect the user profile to push updates to them similar to Facebook instead of requiring the extra effort to search themselves.

"I see this 'user profile' more like a static thing because I don't have a, let's say, I don't have an active way to follow it... And funny to notice but it is really so that it is about the updates. If there is no updates, you do not follow. It's of course understandable. And it actual, how would I say, it's for all of the websites actually. The updates are what matters. You follow the updates....this 'user profile' is normally for most of the people it's really, let's say, static. So why bother because there's nothing happening really." (Operations-level, Voluntary user, non-user of the user profile)

Time and Effort Costs

The perceived costs for an individual in terms of the time and effort required to use the social software tools was also found to be a significant barrier in their adoption. This is the case when an employee feels that they are either too busy to use the tools or that usage requires too much effort. This feeling is particularly strong when the user believes that the knowledge that they would contribute is redundant, in that it already exists in other locations. Six interviewees described 'not having the time' as a significant barrier to either their own or their colleagues contributions within the tools available.

"I know that many people say "I don't have time" or stuff like that, even if it would take a minute or half a minute, 30 seconds to do something.... But some people say that they don't have time to follow 'the platform' and what's going on there and they are sort of. They have their specific job that they are doing and they don't have time to sort of monitor 'the platform'." (Operations-level, Mandatory user, describing why others employees don't contribute to the platform more frequently)

Additionally, two interviewees elaborated on the time cost issue stating that the time required to efficiently share their complex knowledge within the wiki and discussion board was a barrier to their tacit contributions within these tools.

"It [contributing to the wiki] is actually rather time consuming. If you add something you really need to be precise and extensive and so on and that takes time....there is a threshold there too. So to say, it takes time." (Manager-level, Mandatory user, non-user of the wiki)

"There might be the reason also that it is easy to answer short answers to that sort of board, you know, 5 lines max. But when there is lots of info, and let's say, data behind on the questions, it's maybe not the best place to place that... And I would say that I prefer face-to-face and discuss mainly so I'm not too keen on writing let's say answers to questions on 'the discussion board' or any other areas." (Operations-level, Voluntary user, occasional user of the discussion board and non-user of the wiki)

As the interviewees identified the wasting of their time as an efficiency cost to be minimized, it is not surprising that their behavioural intention towards any tool which is perceived to contain redundant knowledge is a tool not adopted. As such, redundancy was found to exist in both the wiki in terms of the knowledge being contained elsewhere in the platform, as well as in the user profile which duplicates knowledge located in both external social media sites (e.g. LinkedIn) and internal tools (e.g. SAP HR).

"People put it [information] already in the traditional pages and to put it double in a wiki is of course some reason that it is not having the full functionality there. We see, I think and that is the same thing with the interactive tool, a lot of redundancy. We see multiple ways to the same means and people will choose only one." (Manager-level, Mandatory user, non-user of the wiki)

"One can only maintain information about oneself in so many places and the question is, what kind of added value it really gives." (Manager-level, Voluntary user, non-user of the user profile)

The issue of redundancy highlights the existences of alternative methods for sharing knowledge to be discussed in the section that follows.

Alternative Tools

Even if a tool clearly provides a known valued outcome and is not negatively impacted by any of the effort barriers discussed above, the social software tool may still not be adopted by the user for knowledge sharing if a more familiar tool exists which offers the

same valued outcome with less effort. As such, the final perceived effort factor identified in nearly all of the interviews (n=8) is the existence of alternative tools for which the employee has a history of comfortable experience. Lazy user theory suggests that in a situation where familiarity with an old or established way of doing something exists, a user will adopt the solution from the variety of those available which serves their need while requiring the least effort (Tétard and Collan 2009).

Within the case company there exist a plethora of alternative mediums with which an employee can satisfy their informal cross-border knowledge sharing and seeking needs depending on the situation. The most frequently mentioned were: phone, email, instant messaging (e.g. Lync), virtual workspaces, holding meetings in person or virtually, LinkedIn and SAP HR, as well as the optimal method of informal communication being face-to-face discussions. Additionally, the recent introduction of the enterprise social network Yammer is quickly replicating some of the benefits associated with the three focal tools via its greater intuitiveness and interactivity benefits.

“I think the main communication today is Lync meetings...So we have #1 being the Lync meeting, #2 Lync Messaging, #3 the email, and then there is a big big big gap until #4 comes with Yammer, and then a big big gap until #5 comes with ‘the platform’.” (Manager-level, Mandatory user, describing why the whole platform is used less frequently)

“The difficulty is, the ‘user profile’ for example, is totally out of the tools that I’m normally using. The tools I’m normally using are on the front page of the ‘platform’, Outlook, Lync, and maybe Yammer. So the ‘user profile’ is somehow, you know, not on the radar of what I’m following.” (Operations-level, Voluntary user, non-user of the user profile)

The below quote as well as the quote related to the user profile in the above section on redundancy clearly demonstrate that employee’s are selecting alternative tools (e.g. SAP HR and LinkedIn) which deliver the primary valued outcome of expert identification offered by the user profile tool; except that the alternatives have greater familiarity and provide more detailed knowledge which helps the knowledge seeker to find the employee with the required know-how to help them.

“I have never kind of read other peoples profiles either. When I look for persons, I go through the HR system.” (Manager-level, Voluntary user, non-user of the user profile)

The lazy user phenomenon was also found to be positively influencing employee usage of the discussion board in that a few interviewees described it's proven value of delivering informal quick and helpful feedback as being superior compared to the official Helpdesk channel which is slower and requires more effort.

“Helpdesk seems to be losing its role towards the ‘the discussion board’...They [employees] have not gone through the helpdesk, which can be time consuming at time to time.” (Manager-level, Voluntary user, occasional reader of the discussion board)

The following quote best sums up the feeling of a number of interviewees regarding the alternative solutions available to them for informal cross-border knowledge sharing.

“There are so many tools available. That is the difficulty.” (Operations-level, Voluntary user, limited user of only the discussion board)

4.4.3 Perceived Social Influence

Contrary to Venkatesh et al.'s (2003) UTAUT model which labels the social influence construct as a direct determinant of use intention and behaviour' based on this research's findings it was discovered that perceived social influence is one of the two categories of moderating social group factors regarding the social software tools analyzed. Perceived social influence appeared to moderate an individual's belief in a tools ability to deliver one's perceived valued outcomes with reduced effort.

This category includes the following moderating sub-categories: achieving perceived critical mass in terms of tool interactivity between users (Kügler et al. 2013), the influence of an employee's manager as an 'important other' (Venkatesh et al.'s 2003: 451), the impact of using the tool on an employee's reputation (Wang and Noe 2010: 121), and the effect of the social capital dimensions within the social software tools

including bridging and bonding (Nahapiet and Ghoshal 1998). Table 5 will assist the reader in following each of the perceived social influence determinants which are able to positively moderate the technological factors by enhancing the perceived valued outcomes and reducing the perceived effort associated with each tool, or vice versa.

Table 5. Summary of Perceived Social Influence.

Sub-Categories	Determinants	Moderating Effect on Valued Outcome of:	Number of Interviewees Mentioned (9 total)
Interactivity	Critical Mass	All Knowledge Seeker and Sender Valued Outcomes	9
Manager's as 'Important Others'	Role-Modelling	No effect on the discussion board, unknown for wiki and user profile	9
	Feedback	No effect on the discussion board, unknown for wiki and user profile	8
Reputation / Image	Demonstrating Expertise	Driver to Knowledge Sender Valued Outcomes	3
	Negative Image of "Stupidity"	Barrier to Knowledge Seeker and Sender Valued Outcomes	3
Social Capital Effect	Structural - Know-Who	Expert Identification	8 (discussion board), 5 (user profile)
	Bridging	Finding Information and Expert Identification	5 (discussion board)
	Cognitive - Shared Ground	Shows Shared Problem and Helping Others	6 (discussion board), 5 (user profile)
	Relational - Trust	Helping Others, Feedback Provided, and Knowledge Found Useful by Others	6 (discussion board), 1 (user profile), 1 (wiki)
	Bonding	Shows Shared Problem, Being Identified as an Expert	9 (discussion board), 2 (user profile)

Interactivity

As there are social dynamics at play within social software tools (Kügler et al. 2013), in order for the tools to afford their valued outcomes (e.g. finding an expert or feedback being provided), user's must perceive a high level of interactivity within the tool. Supported by all nine interviewees, this determinant was shown to directly correlate

with intention to use all three tools; positively through high interactivity in the case of the discussion board and negatively from low interactivity for the user profile and wiki. Additionally, a lack of perceived activity of one's colleagues within a tool was directly associated with interviewees' associating no value with the tool.

"I think that the 'discussion board' it's working quite well because I see really people active there and there are often new questions." (Manager-level, Voluntary user, active user of the discussion board)

"I don't know people who are contributing to the wiki really. Neither do I hear about it in my environment. No one is referring to the wiki. No one is asking to put something in the wiki... It would be positive to see if people are really using it but I don't see that yet." (Manager-level, Mandatory user, non-user of the wiki)

A heightened level of interactivity was shown to occur once the tool has reached critical mass through clearly demonstrating little effort to use in achieving a valued outcome resulting in people sharing it with each other and reinforcing its use. As such, achieving critical mass appeared to be a very significant determinant of social software tool adoption for the interviewees as expressed most clearly in the following quotes.

"When you find a good tool you distribute the message and then somebody else is starting to use it. And unfortunately, I don't know if there is a way to push certain tools. It somehow only happens. People start to use it, finding interesting ways to use it and then it works." (Operations-level, Voluntary user, limited user of only the discussion board)

"The problem I see there [with the user profile] is the critical mass. Not enough are using it let's say, continuously as a channel and that's then makes it... it doesn't create value." (Operations-level, Mandatory user, non-user of the user profile)

Manager as 'Important Others'

A significant weight is placed on the function of 'important others' for encouraging adoption of new technologies (Venkatesh et al.'s 2003: 451) and that of 'referent individuals' regarding sharing knowledge via Web 2.0 technologies (Paroutis and Al Saleh 2009: 59). A particularly surprising finding was that despite nearly all

interviewees (N=8) describing their manager as demonstrating zero utilization of the three focal tools, this appeared to have no effect on the individual's own intention or use of the discussion board or on the one employee most heavily using the wiki and user profile. Although there was no active role-modelling of the tools from ones immediate superior for either voluntary or mandatory users, it cannot be argued that the supervisor's lack of tool use has no impact on their subordinates behavioural intentions as most interviewees (n=6) were also not using either the wiki or user profile.

“As far as I know, he's [interviewee's manager] not using wiki. As far as I know, he's not contributing to 'discussion board' forum. If he is reading that I don't know. And I'm not aware how up to date his 'user profile' is. Maybe that he is doing there a lot or not. And if he is searching or browsing other's 'user profiles', I don't know.” (Manager-level, Voluntary user, heaviest user of the user profile and wiki and occasional user of the discussion board)

Furthermore, as mentioned by the same eight interviewees, neither were managers providing feedback regarding usage of these tools. Especially for voluntary users which stated that although their manager's are supportive of their tool use, it is the responsibility of the employee to self-select the correct tool for the task at hand. Although a lack of feedback was not shown to impact use of the discussion board, it cannot be similarly demonstrated to have not impacted adoption of the other tools.

“I don't remember that we [manager and interviewee] would discuss these discussion boards or anything specifically.” (Operations-level, Mandatory user, active user of the discussion board)

It is logical to infer that as the lack of role-modelling behaviour from one's superior does not appear to impact use of the discussion board, that in the case of defining 'important others' or 'referent individuals' for social software tools, these terms could apply more to their use by all other employees within the organization as demonstrated previously with the determinant of interactivity being highly correlated with tool use.

Reputation

The majority of the interviewees (n=6) referred to the discussion board's (n=5) and to a lesser extent the user profile's (n=1) ability as a social influence determinant to impact either positively or negatively upon a user's reputation due to the visibility afforded by the tools. Through an employee actively sharing their knowledge in the discussion board, they can positively boost their reputation within the company by portraying themselves as a knowledgeable individual with useful know-how which can assist knowledge seekers in identifying the respondent as an expert. This social influence determinant is directly linked with an individual's perception that they have useful knowledge to share and that they desire to be found as an expert by others.

"Let's say 'the discussion board' then for instance. Where maybe you presented yourself as a guy, this guy has some good info. Let's talk to him and then you establish a new connection with your colleague. Someone you haven't met before, discussed before. And then there might come up other things from that way. So of course as I said you build your persona there and your value in a sense that. And that's usually an outcome also when you're active there." (Manager-level, Mandatory user, active user of the discussion board)

On the flip side, the visibility afforded by the tool can also act as a barrier to achieving an employee's valued outcome if they believe that publically posting either "stupid questions" (re: knowledge seekers) or "stupid answers" (re: knowledge senders) on the discussion board will negatively impact their image in the eyes of other employees.

"There can be that somebody see that if I'm posting this question, 'is that stupid question?' or something and you know they always should be somehow professional and that type of thing. It's of course exposing somehow your knowledge level and that's not always for everybody... And it's somehow, you know, 'allowed' to have an IT question. If you asking something technical and you are a technical person then it might be that 'why don't you know this?'" (Operations-level, Voluntary user, limited user of only the discussion board)

"People are afraid maybe to give a 'stupid answer' which either is not correct, which is typically a Finnish problem, you don't answer unless you know you're correct... this is a threshold, once you are over it, it's not a problem." (Operations-level, Mandatory user, active user of the discussion board)

Social Capital Effect

The data analyzed from the interviews demonstrates that the knowledge sharing benefits associated with social capital, for example providing increased access to knowledge resources within a network (Nahapiet and Ghoshal 1998; Tsai and Ghoshal 1998), were more prevalent in the higher interactivity tools (re: discussion board) where increased use of the tool reinforced its ability to achieve the user's valued outcomes with less effort. As such, a tools interactivity level between employees appears to be positively correlated with its ability to build social capital within the organization and moderate behavioural intention. This was found in the interviewee's responses to occur through: enhancing opportunities for structural connections to be made (e.g. discussion board and user profile), developing bridges across structural holes (e.g. discussion board), illuminating areas of shared cognitive ground between employees (e.g. discussion board and user profile), leveraging and reinforcing relational trust (e.g. discussion board), and finally strengthening the bonds between distributed employees who interact infrequently (e.g. discussion board and user profile). An interesting finding was that there appeared to be very limited social capital effect within the wiki which is possibly related to the majority of users not identifying any valued outcome and a lack of tool interaction.

The discussion board (n=8) and to a lesser extent the user profile (n=5) were found to enhance a knowledge seeker's opportunity to develop structural connections which achieve their valued outcome of identifying an expert with the requisite know-how at all levels of the organization horizontally as well as across borders both functional and geographic. Responses from unknown employees in the discussion board were shown to help a user develop new weak network ties, while adding colleagues in the user profile were used to reinforce stronger network ties across great distances between employees who had previously met in person.

"I have seen people from many countries especially in the 'discussion board' section.. I don't even know who they are....Some of them I knew, yes. And they were experts in some cases. Similar to me I would say. But also unknown." (Manager-level, Voluntary user, light user of the discussion board describing perceived active users within the discussion board)

Furthermore, the discussion board was found to play a key role within the organization for bridging across structural holes between employees with weak ties to assist a knowledge seeker in achieving the valued outcomes of either finding a specific answer or expert identification. This was demonstrated in the comments of five interviewees wherein they mentioned that when someone read a question for which they didn't know the answer themselves but knew someone who did, they would pass along the question to ensure that the knowledge seeker received an answer from the organization's expert.

"I knew that there was also the case that this question was carried, or sent to a person who was not really reading that 'discussion board'. But somebody else had, you know, taken that question to the next guy. So you can have links there where somebody reads it." (Operations-level, Voluntary user, limited user of only the discussion board)

The cognitive dimension of social capital also acts as a moderator of behavioural intentions to utilize the tools in that it can assist in developing shared cognitive ground between employees of different departments. This was found to occur within the discussion board (n=5) in achieving the valued outcome of illuminating shared problems, as well as occurred in both the discussion board (n=6) and user profile (n=5) through identifying common interests which assisted the knowledge sharing process later on in terms of helping others.

"Sometimes I check those [other's user profiles] when I have a meeting or when I want to know something about the background of those persons...Actually it comes to this informal discussion also, that what is the background and what type of things they are interested on and let's say, finding out the maybe common background." (Operations-level, Voluntary user, infrequent user of the user profile)

Despite the advantage of the user profile to assist with highlighting shared common ground and sharing one's interests with colleagues, it was surprising that very few interviewees utilized the tool for this purpose. This is possibly due to the shared cognitive ability being limited by perceived tool functionality issues as noted earlier.

Regarding the relational dimension of social capital primarily associated with the valued outcome of helping others (n=7), it was surprising that only one interviewee described reciprocity as a driver of their behavioural intention both within the user profile and discussion board.

“At least always somebody was taking care and leading to somewhere where I finally found the answers. So it was never like a frustration and unanswered question...And if someone else has received a similar, to a similar question and answer, it increases the likelihood that I will increase the question and answer to my question. So in other words, if I’m benefiting from it, it’s likely that I will contribute and others will benefit from it as well.” (Manager-level, Voluntary user, actively asks and answers questions in the discussion board)

The relational dimension’s most influential determinant appears to be the level of trust between knowledge seekers and knowledge senders in terms of competence-based trust and benevolence-based trust, respectively. The impact of this is two-fold wherein a knowledge sender requires benevolence-based trust that the knowledge seeker will not hold them accountable for the outcomes of applying the answer provided; while a few interviewees (n=2) specified that it is up to the knowledge seeker asking the question to determine the validity of the reply in answering their question based on their competence-based trust in the expertise of the knowledge sender.

“The sharing of ideas is a challenge internally I would say. And it very much is dependent on the individual’s finding each other and trusting each other... another thing is that the trust level, when you put something in that system [the platform]. How will it be used or misused? That I think is an unclear thing for the moment.” (Manager-level, Voluntary user, light user of the discussion board never answering with personal opinions)

“It needs to be responsibility of the person asking the question to evaluate the answers correct or not.” (Operations-level, Mandatory user, active user of the discussion board in answering questions)

Although bonding occurred in the discussion board (n=9) through sharing common problems as well as reinforcing the building of trust and reputations; only two interviewees described using the user profile to maintain and strengthen bonds with informal colleagues via increasing the frequency of their interactions to aid in establishing themselves as an expert; however, one discontinued their use due to perceived tool functionality issues.

“Another aspect of ‘user profile’ is that you can leave there “notes”. And for peoples I have already established a relationship, sometimes I comment or leave a note simply to reinforce the connection, the relationship, so a networking aspect of it... leaving notes

and keeping in touch and create groups and this typical social media functionality is valuable to upkeep personal relationships easy with people you don't have a daily contact or work related contact.... I think social media can't replace personal networking totally but it can help to keep a loose contact at least.” (Manager-level, Voluntary user, most active user of the user profile)

“The main reason I wanted to utilize the tagging and the notes section was that when you tag or when you link something, in the most social medias, you enforce your colleagues or your friends to also look at it.” (Manager-level, Voluntary user, stopped using the user profile after failed trial)

Consistent with the attitude section of the findings, while the focal social software tools can aid in building social capital for knowledge sharing, they were found to not be as effective in doing so compared to the preferred alternative of face-to-face communications which have higher bandwidth and with which employees are more familiar and therefore motivated to use (n=6).

4.4.4 Perceived Support

Perceived support was determined to be the second category within the social factor group found to moderate an employee's behavioural intentions associated with the technological factor's of perceived valued outcomes and perceived effort. This category represents the organizational level of influential knowledge sharing factors described by the interviewees as well as proposed in the following literature on knowledge sharing and technology adoption: organizational context (Wang and Noe 2010), perceived organizational/management support (Paroutis and Al Saleh 2009: 59), and the facilitating conditions of a supportive organizational and technological infrastructure (Venkatesh et al. 2003: 453). This includes an employee's perception of the following moderating sub-categories: a knowledge intensive organization, organizational knowledge sharing culture, management support, and technological support.

The first two sub-categories influence the employee's perception of a general supportive atmosphere for knowledge sharing using these tools, while the second two sub-categories influence their perceptions of support specifically related to the perceived valued outcomes and effort required for the tools. Table 6 will assist the reader in

following each of the perceived support determinants which were found to positively moderate the technological factors by enhancing the perceived valued outcomes and reducing the perceived effort associated with each tool, or vice versa.

Table 6. Summary of Perceived Support.

Sub-Categories	Determinants	Main Moderating Effect on:	Number of Interviewees Mentioned (9 total)
Knowledge-Intense Organization	Both Knowledge- and Process-Intensive	Finding Knowledge in the Discussion Board	8 (Both Knowledge- and Process-Intensive), 1 (More Process)
Organizational Knowledge Sharing Culture	Knowledge Sharing Could Improve	Valued Outcomes: All Effort: via Trust	8 (1 exception of potentially biased interviewee)
	Multiple Cultures Exist in Transition	Valued Outcomes: All Effort: via Trust	7 (Whole platform and all tools)
	Not Ready for Social Software Tools	Effort: Intuitiveness and History	4 (Whole platform and all tools)
Management Support	Unawareness of Tools	Valued Outcome: Unknown Purpose	5 (wiki and user profile)
	Demonstrate and Promote Tool Purpose / Value	Valued Outcome: Unknown Purpose	8 (all tools, mainly wiki and user profile)
Technological Support	Fixing Issues within the Tools	Effort: Prior experience and Intuitiveness	5 (Whole platform and all tools)

Knowledge Intensive Organization

With the exception of one interviewee who perceived the case company to be working more with process-intensive tasks, the other eight employees perceived the company to be fairly evenly split between a focus on unstructured knowledge-intensive tasks and completing process-driven tasks depending on the department in which one works.

“I see both [knowledge-intensive and process-driven] because it’s a big company and depending on where you are in the company it will be more development driven.”
(Manager-level, Voluntary user, light user of all tools)

It was not possible to ascertain support if this determinant had an influence on usage intention given that eight of the interviewees perceived themselves to be a knowledge worker within a knowledge-intensive department and they all demonstrated different usage patterns. However, this could still be a moderating factor in that all nine interviewees described their own department to be somewhat knowledge-intensive and they all utilized the discussion board to varying extents to find knowledge to assist in their role regardless if they were a mandatory or voluntary user of the platform.

Organizational Knowledge Sharing Culture

As perceived costs (re: associated with effort) have been shown to have a negative effect on knowledge sharing and can be reduced by a supportive organizational culture emphasizing trust (Kankanhall et al. 2005); the interviewees were asked to share their thoughts on the case company's approach to informal knowledge sharing across borders. With the exception of one, possibly biased, interviewee, all respondents (n=8) described the case company's knowledge sharing culture as good but that it could still be improved, particularly in respect to the informal aspect focal to this research.

"It seems it [informal open knowledge sharing] really not a habit to do it in 'the case company' yet.... we don't use the power of 'the case company's' knowledge as much as possible. Or when we do it, it's really formal." (Operations-level, Voluntary user, only user of the discussion board for asking an informal open question)

Trusting that one could share opinions (n=2) rather than only formal responses (n=2) in an ESSP's tools was discovered to be positively correlated with an interviewee's perception that the organizational culture is supportive of open knowledge sharing. Despite the case company espousing the value of 'openness', this demonstrates the most interesting finding regarding the organization's knowledge sharing culture in that there appeared to be an ongoing transition from a traditionally closed and formal conservative culture based on fear towards a more modern open and informal culture. As the transition is in progress there appears to be multiple cultures existing within the organization at a departmental or functional level, between operational / expert (open)

and managerial (closed) roles, as well as within departments at a generational level where younger employees are more open to sharing their experiences informally.

“The formal culture basically or the real culture, apart from the statement that we are striving for openness, the real culture tends to be a little bit more closed... There tends to be sometimes a bit of a ‘Fear Culture’... People are not sharing easily online their opinions. People are rather careful what you put there. So that will limit.” (Manager-level, Mandatory user, originally heavy user of all the tools but now an infrequent user)

This demonstrates the moderating effect of a supportive organizational culture in that it was found that interviewees which perceived themselves to be within a culture open to knowledge sharing (e.g. operational roles) felt more comfortable with posting opinions publically and asking open questions in the discussion board. The duality of the case company’s organizational culture regarding informal knowledge sharing across borders is best represented using the example of an interviewee who received mixed feedback when trying to achieve the valued outcome of innovative idea collaboration within the discussion board.

“I’ve use the ‘discussion board’ for this asking technical questions and also for asking ideas for new concepts. And actually the reaction for asking new ideas for the concept was really two-sided. Some of the persons were saying that this is a really good idea to ask this openly and let’s say so that you can, it was really see-through process. But from the other side, the people were complaining ‘can you really do that?’ because it’s a project which is just a bit secret and that type of thing.” (Operations-level, Voluntary user, only user of the discussion board for asking an informal open question)

Related to the above cultural issues impacting knowledge sharing on a general level, four interviewees implied that the case company’s culture is not ready for social software tools. This was partially due to the fear of public posting in the discussion board compared to the familiarity of asking questions in person. Additionally, two comments were specifically related to the user profile and the wiki by interviewees describing themselves as non-active users of either of these tools due to cultural and intuitiveness barriers.

"I mean the culture is just not there yet to do that kind of knowledge sharing using tools." (Manager-level, Mandatory user, non-user of the wiki describing why the wiki is not used more frequently)

Furthermore, it can be interpreted that the perceived organizational culture also has an impact on the perceived social influence category. An example being that an employee who believed that there exists a more closed culture was more likely to fear that posting a "stupid" question or answer would harm their reputation, reinforcing their fear of public posting and decreasing the perception that they can achieve the valued outcome of being identified as an expert using this tool.

Management Support

The support of management was found to be important in influencing the interviewees' perceptions of the valued outcomes associated with each tool leading to enhanced behavioural intentions. The first step for a tool to be perceived as valuable was that employee's had a basic awareness of its existence (n=5) in terms of tool visibility. Logically, the interviewees who were either not aware of the wiki or the possible functions within the user profile, described no intention or usage of the tool in question.

"I think that these tools that we have now discussed could be more visible, even become a better tool. But now they are drowning in there somehow." (Manager-level, Voluntary user, light user of all tools)

Although the tools were visible to most employees, six interviewees explicitly discussed not knowing the specific value or purpose that can be derived from at least one of the tools; referred to earlier as the unknown purpose or value determinant (n=6) within the perceived valued outcomes category. Almost all interviewees (n=8) alluded to it being the responsibility of management, and specifically the platform / tool "owners" (re: the communications department), to demonstrate and promote each tool's benefits as this would support the user's perceptions of its potential valued outcomes. This common feeling among the interviewees is most strongly captured in the following quote.

“The message about them, ‘why they are there’ should be more clearly communicated...I would say that would be the natural starting point if they [tool owners] want the tools, and see it add value, it should be clearly stated ‘why and how, and what will be the impact by using it, contributing’.... these tools needs to have a clear purpose and when that is communicated well, then I know that when I need what they provide, then I will go there.” (Manager-level, Voluntary user, light user of all tools)

Beyond demonstrating a tool’s purpose, the value must then be actively promoted to all employees through sharing stories of work performance improvements in order to motivate interactivity which helps move users from first perceiving the valued outcomes, towards the perceived effort associated with the tool upon initial use.

“If you cannot clearly show the value with, I mean people will not just do it because you write every day that you should update ‘the user profile’...Show some examples and you know tell some success stories for instance.” (Manager-level, Voluntary User, non-user of the user profile)

It was surprising to discover that although management’s use of rewards to encourage behavioural intention was supported in the literature (e.g. Paroutis and Al Saleh 2009: 59), not one respondent mentioned rewards in the interviews. Furthermore, although receiving training on the tools was also not explicitly mentioned by any of the interviewees; even for the highest users of the tools there were still heightened perceptions of effort associated with the feeling that there are not specific enough guidelines provided by management to aid in enhancing utilization of the tools.

“‘The discussion board’, yeah maybe there could be, you sometimes see in forums always as the top topic the rules of the forum of this forum. So like the netiquette or what belongs to it. And I think if this could be available for everybody, always very prominent in the front end, the likelihood of wrong placed questions could decrease.” (Manager-level, Voluntary user, active user of the discussion board)

Overall, it was found that the interviewees discussed the lack of management support in assisting with clearly defining the purpose of each tool as an negative moderating factor on their own perception of the tool’s potential valued outcomes; particularly in association with the wiki and user profile. However, even for employees who perceived

the valued outcomes themselves, a barrier still existed regarding the tools perceived effort which could be overcome if moderated by technological support as well.

Technological Support

An employee's perception regarding the technological support provided for each of the tools was found (n=5) to moderate the degree of effort they perceived to be associated with that tool. This was most strongly discovered for the user profile, wherein two interviewees' initial negative tool experiences resulted in the user profile being abandoned altogether upon finding lacking adequate technological support to alleviate the effort required to use the tool as desired.

"I opened up also a support case for it [the user profile to fix the external linking functionality] but the answer was "this is not how the platform works" and it ends there." (Manager-level, Voluntary user, stopped using the user profile after lack of technological support)

In some cases involving the discussion board and the wiki, a lack of technological support was not a barrier to the tool's actual use, but it was found to limit an interviewee's behavioural intentions in terms of either deriving more extensive value from the tool or further reducing the effort associated with the tool.

"I could imagine if it would have enhanced usability as well, that you would be able to copy / paste pictures directly to the wiki, we may even use it for other things as well." (Manager-level, Voluntary user, most active user of the wiki)

Technological support in terms of fixing issues identified within the tools was shown to assist in reducing the perceived effort associated with the determinants of 1) alleviating negative initial experiences with the tools, and 2) enhancing aspects of intuitiveness. Therefore, an individual's perceived support in combination with their perceived social influence were found to moderate their intentions regarding a tool's perceived valued outcomes and effort; resulting in said tool's usage for informal knowledge sharing.

4.5 Summary of Findings with Behavioural Usage Knowledge Outcomes

Overall, the majority of the motivational perceived valued outcomes and social moderating factors were found to be associated with the discussion board; whereas the majority of the inhibiting perceived effort was attributed to the wiki and user profile. As such, it is logical that the behavioural usage of the interviewees was the highest for the discussion boards resulting from the highest behavioural intention; with usage of the user profile starting higher but quickly dropping after perceived effort issues, and almost no knowledge sharing behaviour occurring in the wiki at any point as shown earlier in the usage behaviour (Table 2). The primary findings of value from the nine interviewees' behavioural usage is in understanding how they are influenced by each of the three groups of factors as outlined in the sections above, as well as the characteristics of the knowledge outcomes being shared within the tools through actual usage. As such, a short comparison of the tools usage for sharing explicit verses tacit knowledge connected to the behavioural intention influencing factors will now be analyzed.

Explicit Knowledge Sharing

Despite an MNC organizational goal of using social software technologies to capture tacit knowledge for reuse, the majority of the respondents only described instances of sharing explicit knowledge. Associated with the user profile providing the valued outcome of expert identification and finding shared cognitive ground, the information contributed to this tool was purely explicit in nature regarding the competences and interests that a knowledge worker adds to their profile.

“My own ‘user profile’ I occasionally update the competences.... So these are most of the time maybe, sometimes IT or technology key words.” (Manager-level, Voluntary user, most active user of the user profile)

Regarding the wiki, explicit knowledge was shared either through terms and abbreviations contributed or read within the wiki. It is important to note that this is

aligned with the basic guidelines provided by the organization for the tools function as a company dictionary, although this use only scratches the surface of the its potential for informal collaborative knowledge sharing across borders.

“I’ve added the terms that we want to share and we want that people learn.”
(Operations-level, Mandatory user, heavy user of all tools)

Regardless of the influence of the individual, technological, or social factor groups, explicit knowledge was also found to be primarily shared within the discussion board in terms of the focus being on specific questions mostly related to IT; to which knowledge senders quickly shared their experiences to resolve the knowledge seeker’s issue.

“There is a fair amount of IT questions [in the discussion board]. And also technical knowledge actually. You know there are really specific questions about specific products, how to do something with a specific product and so on.” (Manager-level, Voluntary User, active user of only the discussion board)

The above examples clearly demonstrate the focus within the case company of employees sharing explicit knowledge within the three social software tools analyzed.

Tacit Knowledge Sharing

Throughout all nine interviews there were very few references to tacit knowledge being shared within the social software tools. The interviewees described tacit knowledge sharing in general within the organization when asked about their experiences with informally communicating and collaborating across borders; however, once the conversation focused on the three social software tools, discussion of the knowledge being shared also became more explicit. Although it is difficult to gauge the “tacitness” of the contributions based on the vague descriptions provided by the interviewees, it does appear that there was one case in which an open innovation questions garnered tacit responses. However, as previously mentioned, this case was described as being unique as the company culture may not be ready for that type of openness. Additionally, as demonstrated by two respondents, the degree of tacit response required to answer

more complex questions appears to be directly associated with a user ‘going offline’ given the limited asynchronous bandwidth of the tools.

“For example there has been that yeah the person has answered, that “yeah I know about this and that thing” but I will call you. Or I only got an email after that. But the answers are not always on the [discussion] board after that... I have really found those answers what I’ve been looking for. Even if the result has not always been a direct post, but it kind of has been also a phone call or some other contact method.” (Operations-level, Voluntary user, only user of the discussion board for asking an informal open question)

The question of these social software tools’ ability to share tacit knowledge and the phenomenon of ‘going offline’ is a particularly interesting aspect of the research. This provides a logical conclusion to the findings section as the answers require speculation beyond the data collected and analyzed. While the findings and integrative framework outlined above assisted in answering the research questions based on the data analyzed through providing the multitude of factors influencing a knowledge workers’ ESSP tool utilization; the discussion section to follow goes a step beyond through proffering possible explanations as to why the findings were discovered in light of existing academic literature.

5 DISCUSSION

As the research questions were specifically answered in the findings section through the integrative framework backed by contextual quotes, the discussion will now focus on the main findings of interest. It will do so by elaborating on this study's findings through linking the factors illuminated within the integrative framework (Figure 2) to the relevant literature reviewed by highlighting theories and concepts that were supported (re: expected), unsupported (re: contradictory), or new insights (re: surprises) with the objective of answering the research questions (Maylor and Blackmon 2005). The questions will be answered in this chapter through discussing the main findings of the framework, the most important attitudinal influencers, an explanation of each tool's behavioural usage, and concludes with critiques and speculations regarding the framework's justification of behavioural intentions.

5.1 An Integrative Framework of ESSP Tool Adoption for Knowledge Sharing

The following three groups of factors were found within the integrative framework to be responsible for influencing a knowledge worker's willingness and contributions to informal cross-border knowledge sharing: individual, technological, and social. The existence of these three groups were found within the existing literature to varying extents and in this study were found to overlap, support, and complement each other to explain both a knowledge worker's sending and seeking behavioural usage within this study's specific context. The three groups were collectively responsible as it was found that no single group could account all of the influencing factors that emerged from the data analysis process.

A central discovery that materialized from the findings was that an ESSP tool's high degree of technological factors of perceived valued outcomes act as the motivational driving factors whereas a high degree of perceived effort reflects the inhibiting barriers, and vice versa, wherein the inability of a driver to be achieved can also act as a barriers and the reduction of effort can act as a driver (Paroutis and Al Saleh 2009). Furthermore, contrary to Venkatesh et al. (2003), the higher degree to which the social

factors of perceived social influence and perceived support were present for a specific tool, the more they were found to positively moderate the technological categories by enhancing the drivers and reducing the barriers through social dynamics (highly important), social capital (moderately important), and providing a supportive organizational context (less important).

Overall, given the modern organizations push for travel expense cutbacks replaced by technology (Klitmøller and Lauring 2013), it was found that social technological tools appeared to be helping facilitate the occurrence of global knowledge sharing while simultaneously increasing the difficulty of the actual sharing activity, particularly for tacit knowledge (Panahi et al. 2013). This was supported by the fact that five of the interviewees mentioned the company's ESSP unaided during the initial discussion of informal knowledge sharing within their roles; however, six respondents supported Noorderhaven and Harzing's (2009) argument as they said that face-to-face interaction is the ideal medium for informal knowledge sharing.

Finally, in understanding the usage pattern variation between interviewees as explained by the framework, the discussion will now turn to the most significant individual factors found to influence a knowledge worker attitude towards knowledge sharing.

5.2 Important Attitudinal Influencers

The two most important influencing individual factors were found to be between: 1) employees classified as mandatory verses voluntary users which was a moderating variable in UTAUT (Venkatesh et al. 2003), and 2) employees in managerial verses operational roles similar to Nonaka and Takeuchi's (1995) knowledge worker roles.

Mandatory vs. Voluntary

While mandatory users did not actively use all the tools provided with a higher frequency than voluntary users as expected by Venkatesh et al. (2003); they did demonstrate stronger positive attitudes towards the tools as well as described more perceived valued outcomes for each tool which could be indicative of their bias towards

the tools as they are required for in-role behaviour. However, higher adoption by voluntary users may be explained by the research of Teh and Sun (2012) where although sharing is an extra role behaviour for knowledge workers; if job attitudes are increased for example by the intrinsic motivation of helping others (Wasko and Faraj 2005, Cabrera et al. 2006), then one will be less likely constrained by motivational factors, resulting in being more likely to engage in knowledge sharing behaviours. This implies that voluntary users need to also perceive that their sharing is actually helping others; a valued outcome mainly associated with the discussion board, leading to its significant adoption by voluntary users. Additionally, although age was not analyzed, the average age of the mandatory users was higher than the voluntary users and as such generational differences could account for higher tool usage. This could be due to social software technology catering more to the needs and experiences of younger generations (Roberts 2000) and those with greater personal social media experience (Kügler et al. 2013); reducing the self-efficacy constraining factor of ability (Siemsen et al. 2008).

Managerial vs. Operational / Expert Roles

Although it is difficult to substantiate claims regarding the differences between manager-level (n=6) and operations-level (n=3) employees due to the small sample size; it appeared that each of the operation-level knowledge workers were much more open to sharing their knowledge and making substantial contributions using the tools. The operations-level employees appear to be experienced 'knowledge specialists' within the 'knowledge practitioners' group of the 'knowledge-creating crew' suggested by Nonaka and Takeuchi (1995) as they were responsible for accumulating and generating both tacit and explicit knowledge which could be mobilized into a form of knowledge that could be transmitted and stored in a computer (re: electronic platforms) through externalization (e.g. knowledge sending). Whereas the interviewees at the manager-level appear to be 'knowledge engineers' whose role is less oriented towards capturing their own knowledge within electronic platforms, and more towards managing the knowledge within the ESSP (e.g. knowledge seeking). Wang and Noe (2010) also support this finding in that useful knowledge was more likely to be shared by individuals with higher expertise in Q&A-based KMS, similar to the discussion board in the case company.

Additionally, all three operations-level employees were interested in sharing their expert knowledge openly as a way to assist the organization's transition from a traditionally closed knowledge sharing culture focused on power, to one that embraces open sharing as a way to demonstrate one's value and expertise through trust (Wang and Noe 2010; Inkpen and Tsang 2005). This appears related to one's perception of knowledge as power where those in managerial positions have less benevolence-based trust in others derived from the organizational politics surrounding technology adoption (Knights and Murray 1994) which can lead to engaging in knowledge hoarding tendencies (Gupta and Govindarajan 2000). One possible answer for the deflated desire of managers to share is that social media tools reduces power dependence by helping employees build social capital across the whole MNC which can threaten the role of power holding gatekeepers in managerial positions (Treem and Leonardi 2012). However, managers should be promoted to use these tools for their ability to build social capital which provides the motivating benefit of greater personal power through enhanced connections to sources of knowledge and access to information which will aid them in achieving work performance efficiencies (Adler and Kwon 2002).

5.3 Tool Behavioural Outcomes and Framework Applicability

The integrative framework appeared able to explain the majority of usage behaviour in terms of the adoption variation found between the three tools studied. For example, the majority of the perceived valued outcomes (e.g. feedback provided, n=8) were attributed to the discussion board and it follows that this was the tool with the strongest behavioural intention and was most heavily used. A critique of this finding is that the candidates interviewed perceived little to no value of the wiki and so they didn't use the tool; however, this only supports the previously established existence of a positive correlation between valued outcomes and usage (Venkatesh et al. 2003). This does not imply causation as it could be the reverse situation wherein those not using the tools do not perceive their value which justifies not adopting them (Treem and Leonardi 2012).

In relation to the four knowledge sharing affordances of social media for MNC's described by Treem and Leonardi (2012), the integrative framework achieves three by:

1) suggesting the three groups of factors which motivate contributions to the tools, 2) recognizes the two tools (i.e. discussion board and user profile) used for the valued outcome of expert identification, and 3) explains the ability of the discussion board to overcome organizational boundaries through bridging for effective knowledge sharing. However, it does not explain the degree to which a knowledge worker's usage behaviour is actually resulting in tacit knowledge being shared and captured within the ESSP for reuse (Treem and Leonardi 2012); a primary argument for MNC's installing this type of platform (Huysman and de Wit 2004). While the ability of the framework to explain tool adoption via influencing factors is the main finding of this study, it is also important to go beyond this by reflecting on the overall nature of the tools in achieving an MNC's desired objective of informal cross-border knowledge sharing.

5.3.1 Tool Impact on Knowledge Sharing Outcomes

The social software tools simultaneously demonstrated a supporting and constraining impact on the activity of informal cross-border knowledge sharing. Supporting in that they provided the ability to share knowledge with more people at a lower effort cost through social capital bridging and enhanced facility to identify experts outside of one's own network; two difficulties recognized in distributed firms. Yet constraining as technology adoption became an additional behavioural usage hurdle (e.g. not knowing 'how' or 'why' to use tools and fear of public posting) as well as was found to limit social capital to weaker ties despite their proposed ability to build and reinforce social capital (Steinfeld et al. 2009). This was especially the case with the social networking aspect of user profiles due to their lack of interactivity within the case company.

Although the focus was not on one particular knowledge sharing outcome as these tools were found to afford different perceived valued outcomes for different individuals (Treem and Leonardi 2012); of significant value to MNCs were the similarities found across the tools and respondents. A primary outcome was using the tools for expert identification (n=6), although mainly found with the discussion board contrary to the argued social networking visibility of one's associations with the user profile (Dugan et

al. 2008). Attaining this affordance is highly relevant for distributed MNC's wherein specialized knowledge is situated within experts located across the world (Grant 1996).

The other main MNC-relevant affordance was receiving quick answers to questions (re: information finding) (n=9) in the form of high quality crowd-sourced feedback which harnesses the combined knowledge of the organization's global labour force supporting collective intelligence (Chatti et al. 2007). This was aligned with the main objectives of the tools as described by the company representative which were to achieve expert identification and break organizational silos (e.g. informal communication); both of which the discussion board was able to achieve in terms of facilitating connections. Also, the findings contradicted the proposal of Panahi et al. (2013) in that there was very little innovative idea collaboration taking place within the tools (n=2); however, this could be linked to the organizational culture not being perceived as supportive in promoting open innovation as a valued knowledge sharing outcome (Michailova and Minbaeva 2012). As the main differences were found in relation to the tools selected to achieve these outcomes and their ability to actually deliver the valued outcome, a comparative discussion of the three focal tools adoption will be presented next.

5.3.2 Integrative Framework's Explanation of the Tools' Adoption

Through analyzing the most significant factors found to make the discussion board a successful tool, one can infer general behavioural intention factors that made the wiki and user profile unsuccessful; however, the specific determinants of their valued outcomes must be inferred from the literature. Examples will be provided using the three tools wherein: the discussion board was found to espouse motivational driving factors resulting in behavioural use; the user profile demonstrated some drivers leading to partial use with varying barriers causing usage to drop; and the wiki experienced the most inhibiting barriers, the consequence of which was almost zero adoption or use.

Discussion Board

Central to the discussion board being perceived as delivering highly valued outcomes with low effort moderated by perceived social influence; critical mass was supported as key for unlocking the interactivity social dynamics at work within the theory of network externalities wherein Katz and Shapiro (1986) suggest that the more people using a technology the higher its value (Kügler et al. 2013). This appeared to be a major moderator of a knowledge worker perceiving the actual heightened valued outcome of a tool or reduced effort barriers as seen in the discussion board which was very interactive compared to little interactivity in the user profiles and none in the wiki. This resulted in behavioural intention explained by expectancy theory wherein a knowledge worker only engaged in a behaviour (e.g. asking a question) if they believed that they would achieve their desired outcome (e.g. getting an answer) (Bandura 1977). However, it was not found that contributions from ‘centralized individuals’ created the critical mass to sustain the discussion board as argued by Wasko and Faraj (2005: 52) in relation to electronic networks of practice. Rather, it appeared to be the rapid up-to-date and relevant feedback from all global functions, roles and divisions harnessing the collective intelligence of the organization providing a breadth of responses while demonstrating individual’s expertise and developing digital reputations (Chatti et al. 2007: 414).

Linked to its interactivity, the discussion board appeared to be the best of the three tools for achieving valued outcomes associated with building and reinforcing social capital by providing: more structural opportunities to connect with weak ties which could be enhanced at all organizational levels (Steinfeld et al. 2009); the ability for one to help by sharing their expertise knowledge which is valued by others (Wasko and Faraj 2005); and, help to develop trust through visibly seeing feedback in past interactions wherein knowledge workers felt a duty to help even when they were not formally responsible to answer (Coleman 1990). The discussion board was also found to provide affordances of association where contributors could be linked with a piece of information to build their reputation (Wasko and Faraj 2005) or help link other knowledge workers to questions based on their own associations in terms of bridging connections between strangers (Treem and Leonardi 2012). This allowed knowledge

seekers to benefit from the visibility affordance of social media by recognizing expertise in others with whom there was little to no personal interaction (Shami et al. 2009).

An additional significant factor that effected the discussion board positively but the wiki and user profile negatively was the existence of alternative tools providing ‘overlapping’ purpose / value which were more familiar and that the user had a prior history of using as proposed by Paroutis and Al Saleh (2009). While supporting Thaler’s (1980) endowment effect theory wherein people ascribe a higher value to things they own (e.g. alternative tools like instant messaging for communication which have a history of use); this finding also supports Tétard and Collan’s (2009) lazy user model which posits that an individual will choose the tool which achieves the desired outcome with the least effort. Which in this case is older tools with which users have more experience. While the discussion board was superior in speed and ease of use for knowledge seekers compared to its primary alternative for IT questions (i.e. Helpdesk); the user profile provided less valuable knowledge compared to SAP HR as most user’s were not active in updating their profiles; and for the wiki, knowledge seekers could alternatively search the ESSP’s static web pages for their required information or ask someone either directly or in the discussion board. This also supports the argument of Wagner and Bolloju (2005) in that the discussion board is the easiest form of conversational technology given its simplicity in asking and answering questions.

User Profile

Contrary to Treem and Leonardi (2012) ascribing the affordance of social profiles as self-presentation tools for strategic posting, this was not substantiated as it was found that only one interviewee was using this tool to demonstrate their own expertise. Furthermore, not one respondent perceived there to be any interconnection between their user profile and contributions made within the wiki or discussion board. This may be related to the aforementioned perception that the user profile’s lack of interactivity restricts the ability of one to feel that this goal can be achieved through the tool. Although people sensemaking was proposed by DiMicco et al. (2009) through finding shared cognitive ground and building relationships, this was also not possible due to the

low interactivity witnessed in the user profile as very limited people have completed their profiles compared to the alternative tools which were more up-to-date and had more familiarity such as SAP HR and LinkedIn. The lack of interactivity can also potentially explain the low occurrence of social capital building through maintaining relationships to enhance bonding as only two interviewee's used it for this purpose, of which one was successful; despite this being argued as a driving objective of social networking within the literature (Steinfeld et al. 2009; Ferron et al. 2010). The following Figure 3 is a chain of events which appear to describe the lack of adoption of the user profiles for social networking.

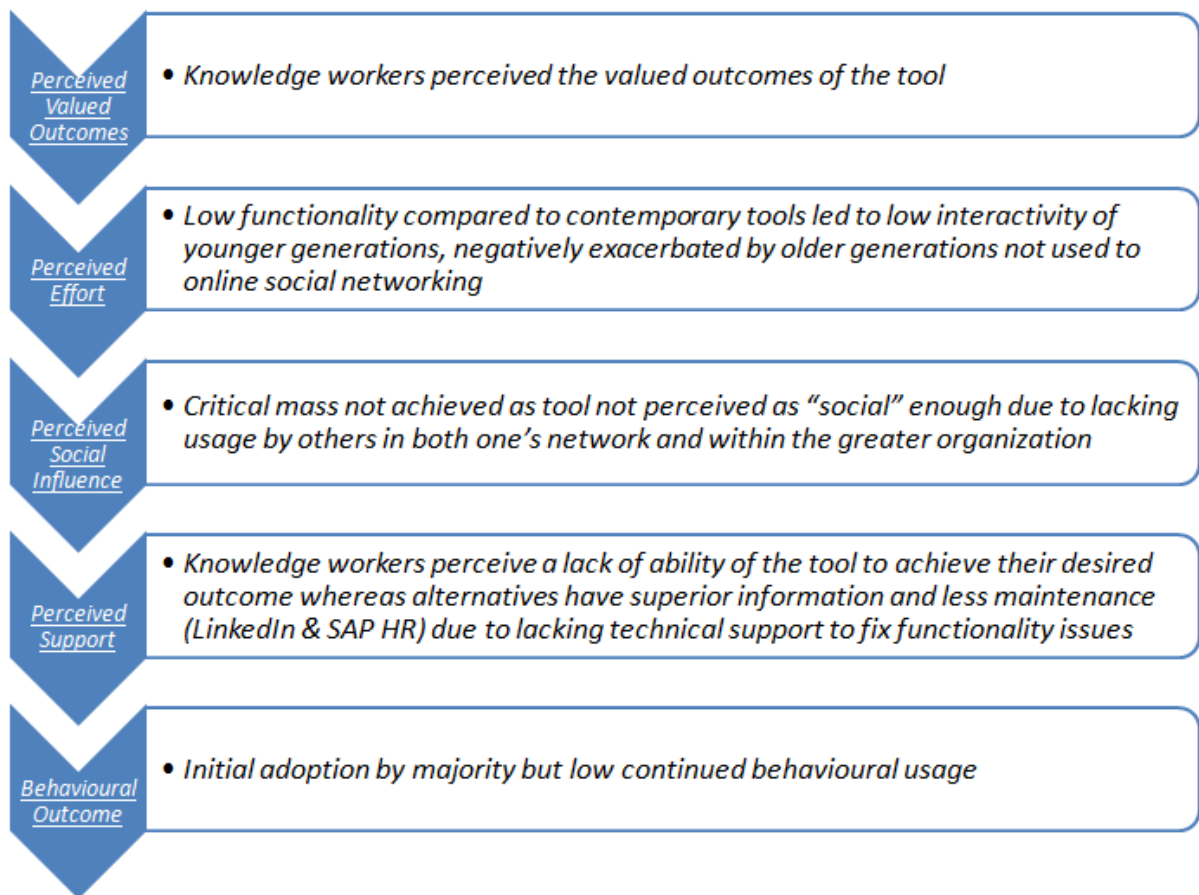


Figure 3. User Profile Chain of Events.

Wiki

Despite Wagner and Bolloju's (2005) claim that wikis are better knowledge management facilitators compared to discussion boards, this argument was clearly not substantiated in this study's findings. This is likely explained by the aforementioned issues of history and endowment theory associated with Holtzblatt et al.'s (2010) discovery that wiki adoption is hindered by a reluctance to share specific information (e.g. due to the extra cost of using the tool) and a heavy reliance on alternative tools to achieve the same function (e.g. easier to send an email). This study's lack of wiki visibility and adoption could also be explained by Kügler et al.'s (2013: 3638) technology adoption determinant of 'result demonstrability' wherein "making the usage results observable is of particular importance with social software: since employees - due to the lack of clarity on usage benefits compared to traditional IS - need to be convinced that it is worth investing the time and effort using the ESSP".

The wiki was also found to lack the following adoption encouragement factors: incentive structures (e.g. visibility through feedback mechanisms to show others have read and used one's contributions), documenting clear guidelines (e.g. norms for editing others content which goes beyond terminology), and making the wiki more usable (e.g. providing training for novices or tech support to fix issues) (Holtzblatt et al. 2010; Grudin and Poole 2010). The following Figure 4 is a chain of events which appear to describe the lack of wiki adoption either by knowledge seekers or senders in the specific context of this study.

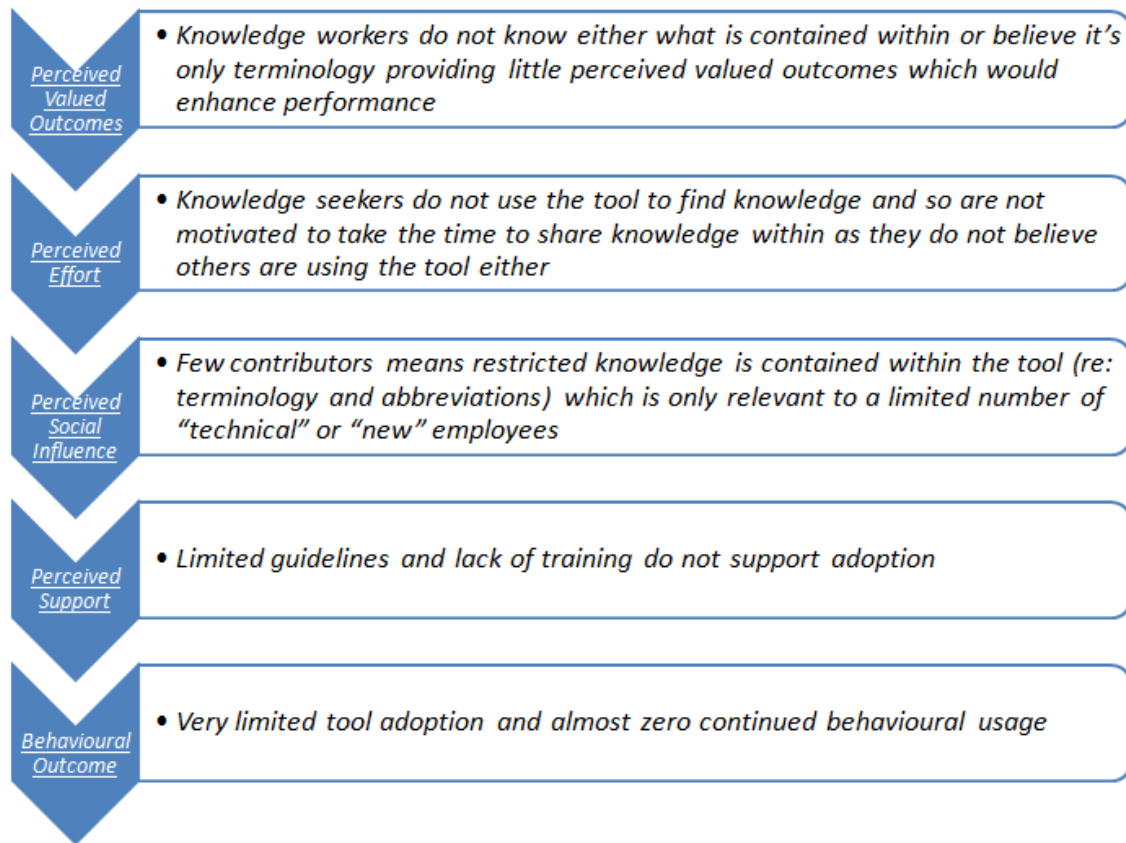


Figure 4. Wiki Chain of Events.

As previously discussed, a major reason why an ESSP's tools are not more utilized is the existence of alternative tools better suited to the activity of informal cross-border knowledge sharing. This leads to a discussion of the types of knowledge found to be shared with these tools and the tools' limitations for sharing tacit knowledge.

5.3.3 Explicit vs. Tacit Knowledge Shared via an ESSP's Tools

It was found that the tools were mainly limited to sharing explicit knowledge (e.g. answering specific questions in the discussion board, adding skills to the user profile, or contributing terms to the wiki). As briefly introduced at the end of the findings section, while the tools offered some ability to explicitly codify and externalize tacit knowledge (Nonaka and Takeuchi 1995); the inherent limitations of the three focal tools occasionally resulted in the facilitation of a tacit knowledge sharing interaction taken

‘offline’ (re: not within the three focal tools). It was found that while the expert identification affordance of the tools allowed knowledge seekers the ability to find the sought holders of individual knowledge through bridging; at this point they occasionally conversed ‘offline’ to share complex tacit knowledge via higher bandwidth mediums (re: instant messaging, phone, and meetings both virtual and face-to-face). There appear to be multiple explanations for this finding which can be split into two categories: 1) the higher effort required to share complex knowledge within the three tools supports arguments for the limited ability of technological mechanisms to share tacit knowledge, and 2) that an ESSP’s tools merely facilitate tacit knowledge sharing interactions.

As sharing tacit knowledge requires the main prerequisite of social interaction (Yang and Farn 2009), it has been often argued that technological mechanisms cannot support the sharing of tacit and highly embedded knowledge which requires higher-bandwidth synchronous communication channels (Nonaka 1994). For example, the social interaction intensity provided by face-to-face communication suggested by social learning theory (Noorderhaven and Harzing 2009). Despite wikis and discussion boards argued to be ideal for externalization of tacit to explicit knowledge (Panahi et al. 2013), as all three focal tools are asynchronous this may explain to a great extent why primarily explicit knowledge was found to be shared. Furthermore, as the organizational language is English and varying degrees of skill in the shared language exist including numerous accents, this study is contrary to the findings of Klitmøller and Luring (2013) which proposed that lean media (e.g the three focal tools) would be more effective for both equivocal (tacit) and canonical (explicit) knowledge sharing as the editability affordance of writing out text helps to alleviate potential misunderstandings such as from accents which could provide barriers in richer communication media.

There were additional findings supported by the following theories which could also explain why people went ‘offline’. A social capital explanation is that the tools within an ESSP only support the formation of weak ties, especially when considering the activity of informal cross-border knowledge sharing, which has been shown by Hansen (1999) to only be effective for sharing explicit knowledge. Additionally, within certain roles in which an employee’s knowledge is highly specialized and complex requiring

recombination with others to form valuable collective knowledge (e.g. R&D, engineering); effective sharing regardless of formality requires a higher frequency of interactions which are only possible in person (Zhao and Anand 2013). This was found in the interviews wherein some respondents claimed the additional perceived effort and time required to codify their tacit knowledge either in the discussion board or the wiki resulted in them directly contacting the knowledge seeker ‘offline’ to share the tacit knowledge through a higher bandwidth channel (e.g. phone or in person) which was less time consuming or more familiar and overcame the inherent inabilities of lower bandwidth channels (Jarvenpaa and Staples 2000).

‘Going offline’ was a surprising finding which alludes to a larger question regarding knowledge worker use of these tools. This is whether an organization’s objective is to specifically enhance tacit knowledge contributions captured within these tools for reuse, or more broadly to support the tools use as facilitators of informal cross-border knowledge sharing regardless of the channel in which it occurs. If the ESSP and its tools are supported mainly as a medium for searching the company for specialized knowledge holders that are outside of one’s personal network (e.g. across borders); then it should be at the discretion of the knowledge worker to select either the tool or channel for sharing which is able to deliver the valued outcome requiring the lowest effort (e.g. instant messaging, phone, email, in person or meetings). However, this negates one of the most valued affordances provided by social media tools, the capture of tacit knowledge within an ESSP for reuse (Huysman and de Wit 2004). This is an issue which will be touched on further within the managerial implications section.

5.4 Social Moderators and Framework Speculation

In order to take a closer look into the interconnectedness of the behavioural intention categories, this moves the discussion towards critiquing the role of social factors as moderators of behavioural intention and the speculated existence of both a process and hierarchy within the integrative framework.

5.4.1 Critiquing the Social Factors Role as Moderators

The two social factors of perceived social influence and perceived support are represented as moderators of the technical factors influencing behavioural intention rather than as direct behavioural intention and usage influencers in and of themselves. While this relationship in the integrative framework was construed from a deep analysis of the data, it is a relationship that is open to critique and possible other interpretations as explained by the existing literature.

In helping achieve the valued outcome of expert identification, social capital is argued to be a perceived social influence moderating factor within the tools as they were used to close structural holes by enhancing the bridging of weak ties with out-groups located in the greater MNC's organizational network not a part of one's personal network (Putnam 2000). The tools also provided the opportunity to develop stronger bonds via identification of shared goals (e.g. discussion boards) and interests (e.g. user profiles) which possibly moderated one's intrinsic desire to help others (van Wijk et al. 2008). As there were alternative methods of communication available, an ESSP's tools were not the glue holding the MNC's diversely spread employees together; rather, they worked as a social lubricant (Leonardi et al. 2013) by easing the communication, connections, and trust (Adler and Kwon 2002) between employees in the form of social capital which motivated and facilitated more effective knowledge sharing (Kankanhalli et al. 2005).

Social capital has been found to be positively associated with individual technology usage intentions (Sykes et al. 2009), and that the tools helped build weak social capital ties (Steinfield et al. 2009) and reinforce trust (Paroutis and Al Saleh 2009). It follows that employees who used the tools should develop stronger social connections which has been shown by Reagans and McEvily (2003) to ease the sharing process for knowledge senders and may motivate them to share knowledge with seekers with whom they have developed connections. The prerequisite and reinforcement of trust through the use of the tools (Paroutis and Al Saleh 2009) was found to exist in the discussion board (n=8) seen through visible feedback encouraging use and to a lesser extent in the

user profile (n=1) of needing to meet someone first to develop social capital which was then reinforced through posting comments. However, it did not occur in the wiki as there was no visibility of the tool being used by others and so no way to build social capital which led to a lack of tool adoption and usage.

The equivalent category of perceived support within Venkatesh et al.'s (2003) UTAUT constructs is 'facilitating conditions' which was shown to have a direct influence on behavioural usage but not on intention. However, perceived support as a moderator is supported by King and Marks (2008) wherein organizational support was found to not be significant when controlling for ease of use (re: perceived effort) and usefulness (re: perceived valued outcomes). One possible reason for the limited use of the three tools for greater informal knowledge sharing could be the perceived lacking moderator of an open organizational culture context required to shape the social norms of sharing and reciprocity within the relational dimension of social capital used to enhance knowledge sharing behaviours through initiating collaborative efforts within tools (Evans et al. 2011). However, a critique is that these social factors may actually influence more the individual's attitude towards knowledge sharing in general which has a greater influence on their overall behaviour intention towards the activity, than specifically on their intentions to use the focal tools within the ESSP (Leistner 2012). This could be further associated with Karlsen and Gottschalk's (2004) argument that the success of knowledge transfer using IT requires managers' communicating what knowledge is worth sharing. Something which wasn't found to occur within the case company.

A surprising finding within the perceived social influence category moderating behavioural intention of knowledge sharing was that a knowledge worker's manager appeared to be a non-influential 'important referent other' (Venkatesh et al. 2003; Paroutis and Al Saleh 2009) role-modelling the approved tool adoption behaviour (Leistner 2012); compared to the significantly influential general colleague endorsement demonstrated via interactivity within the tool as argued by Cabrera et al. (2006). The findings of this study also support the work of Brzozowski et al. (2009) in that visible feedback is crucial to an employee's continued usage of social software; however, with the modification that rapid feedback from any knowledgeable sender was more

important than feedback specifically from one's co-workers or manager. A possible explanation is that managers only impact the social influence mechanism of compliance through social pressure if they have the ability to punish or reward an individual for their tool use (Venkatesh et al. 2003) which was not the case with this study's informal tools, resulting in manager's having limited power to influence use.

Finally, the expected social factor motivators of reputation, reciprocity, and recognition were found to receive varying degrees of support from the study in moderating behavioural intention. Reputation was found to be significant in supporting Wasko and Faraj (2005) in that four interviewees described the ability of the tool to be used to help themselves be identified as an expert by others which increases their expert power; however, some interviewees contradicted this support in that the visibility affordance of the tools goes both ways. For example, the fear of hurting one's image with public posting of opinions resulting from evaluation apprehension creates an extra effort threshold which must be overcome (Bordia et al. 2006). Despite reciprocity being a central component of trust in social capital (Adler and Kwon 2002), it was only mentioned by one interviewee in support of using the discussion board and user profile. This supports Wasko and Faraj's (2005) finding that one's contributions are not related to expectations of reciprocity which opposes the research of Bock et al. (2005). Contrary to Paroutis and Al Saleh (2009) which found that recognition by superiors enhanced participation in Web 2.0 technologies, this study found that it was being recognized as an expert through providing knowledge that was found useful by others which resulted in future contributions within the ESSP's tools.

5.4.2 Process and Hierarchy Existence within the Integrative Framework

Within the integrative framework appeared to exist a specific decision process which knowledge workers followed horizontally according to the theory of planned behaviour (Ajzen 1991), and vertically within each factor group's two categories. This was outlined at the beginning of the findings section through walking through the framework at a theoretical-level. Additionally, within the framework (Figure 2) are numbers for each category which to some extent represent their comparative order of

importance or relevance. For example, in agreement with the research of Davis (1989), it appeared that the factors related to a tool's perceived valued outcomes (re: perceived usefulness) outweighed the importance of the factors related to its perceived effort (re: perceived ease of use). This introduces a speculative aspect to the study wherein the proposed process can partially explain knowledge worker adoption behaviour as alluded to above in the discussion where the user profile and wiki failed to attract greater adoption through a chain of events. While it is beyond the scope of this study to outline the exact steps of the activity one goes through in either seeking or sending knowledge using an ESSP's tools, certain insights can be made from the meta-issues discussed above derived from the interviewees' responses and literature.

As the initial steps in the activity of informal cross-border knowledge sharing is relatively well laid out in section 4.3.2 (AMO Influence on Attitude); a knowledge worker's attitude towards the activity of knowledge sharing will first be determined by a combination of factors related to their role (e.g. operational expert role) and their personal motivation, opportunity, and ability to engage in the activity. The decision to use an ESSP's tools begins at the point where one realizes that the knowledge they require is not located within their personal network. This starts with using the ESSP's search functionality to determine if the knowledge is already contained within the system (e.g. discussion board or wiki) or can suggest a knowledge holder who has indicated their expertise within the user profile. At this point, the knowledge worker proceeds to analyze each of the integrative framework's four behavioural intention influencing categories in turn to determine the tool they will adopt which is supported by the most motivational drivers and provides the least inhibiting barriers.

The knowledge worker will select a tool based on a combination of: social exchange theory to determine the tool offering the greatest ratio of perceived benefits compared to costs (Blau 1964), influenced by endowment effect theory based on their history with the alternative tools (Paroutis and Al Saleh 2009), which is applied to the lazy user model of selecting the tool with the least effort (Tétard and Collan 2009). Depending on the type of knowledge to be shared, the knowledge sender and seeker will then decide if they will use the tool with which they found each other to communicate (e.g. discussion

board) or will opt for a higher bandwidth channel (e.g. phone) depending on the knowledge's degree of tacitness. Finally, the knowledge worker's future use of the tool for knowledge sharing will be determined based on their overall usage experience which feeds back to redefine or reinforce their perception of their ability to successfully achieve their valued outcomes with limited effort using the tool.

There also appeared to be a degree of hierarchy in the importance of certain determinates within the categories in relation to others. A prime example within perceived social influence is interactivity associated with critical mass which appeared to be the most important determinant in this category as explained earlier. However, as each category's determinants are interconnected and overlapping to varying extents, future research is required to separate them further and determine their independent weights. For example, applying template analysis to assign weights to each of the categories and determinants within would assist in confirming the existence of these types of hierarchical relationships. Limitations of time required for deeper analysis and the conducting of additional interviews to support these findings didn't permit utilization of this analysis method within this study (King 2004).

This closes the discussion section of the report and paves the way for the conclusions section which describes implications from this discussion and further elaborates on areas of future research which may provide answers to these speculative proposals.

6 CONCLUSION

The final chapter of the report summarizes the study's contributions and implications for managers beyond those described in the discussion. This is followed by the limitations of the research and concludes with suggested directions for further research.

6.1 Theoretical Contributions

This study's main contribution to the field of knowledge management within the area of international business and management is the development of an integrative framework which elucidates the interrelated influence of individual, technological, and social factors resulting in a knowledge worker's adoption and behavioural usage of an organization's enterprise social software platform's (ESSPs) tools for informally sharing their knowledge across borders. In prior research, these three factor groups have not been analyzed for their complementarities and empirically applied to an ESSP's tools as conducted in this study.

Within the integrative framework, this study identified the existence of specific technological motivational drivers in the form of perceived valued outcomes and inhibiting barriers embodied by one's perceived effort. These were shown to derive from an individual's role-specific attitudinal orientation towards knowledge sharing which were then moderated by social factors related to one's perceived social influence for each tool and the perceived support from the contextual organizational environment.

The identified influencing determinants of knowledge sharing were ascertained through analyzing the three social software tools of a user profile, a wiki, and a discussion board located with an ESSP. The conceptual framework and speculative knowledge sharing activity steps established address the research gap by integrating the relevant literature with the exploratory research findings in achievement of illuminating adoption and usage pattern variances in a unique manner which builds on the ongoing work of academics in the field of knowledge management. As such, the framework provides a more all encompassing perspective of ESSP usage for informal knowledge sharing

through combining the leading theories of: individual attitudes and motivations for sharing one's knowledge; inherent social relationship influences on knowledge sharing and its supportive organizational context; and, the adoption and behavioural usage of technological tools for the purpose of knowledge sharing.

Additionally, while the discussion board was found to facilitate informal cross-border knowledge sharing, in the context of this research, the user profile for social networking and the wiki were unsuccessful and hindered the sharing activity in comparison to face-to-face communications. These contributions closed the research gap through shedding further light onto the specific determinants which manager's can manipulate with the objective of enhancing social software tool usage to attain the widely acknowledged benefits of knowledge sharing within MNCs.

6.2 Managerial Implications

First and foremost it is important for top management to determine if their objective for an ESSP's tools are to specifically capture the tacit contributions of the firm's knowledge worker within the tools for reuse, or if that is only a positive by-product of the broader objective of facilitating informal cross-border knowledge sharing to enhance organizational efficiency, effectiveness, and innovation. Although most organizations desire generating a greater volume of contributions in all ESSP tools (DiMicco et al. 2008), it is important to note "the possibility of dysfunctional impacts generated by information technology emphasizes that user acceptance is not a universal goal and is actually undesirable in cases where systems fail to provide true performance gains." (Davis 1989: 335) Meaning that an organization should focus on its desired outcomes and not force adoption of any tool for which there may be superior alternatives (Paroutis and Saleh 2009), or for roles in which the tools represent more of an efficiency hindrance than enabler. However, this study argues that both objectives can be simultaneously achieved through managerial application of the integrative framework to identify each social software tool's manipulable influencing factors resulting in improved usage contributions within the ESSP and facilitation of knowledge sharing.

A knowledge worker's behavioural intention perceptions can be augmented through management boosting the effects of social influence and enabling an open and supportive organizational culture for knowledge sharing. This is associated with the promotion of valued outcomes providing enhanced performance benefits achievable with reduced effort (e.g. sharing success stories). As proposed by Adler and Kwon (2002), collaborative technologies only provide the opportunity for knowledge sharing through establishing more social ties, whereas the real importance is in building social capital which requires management nurturing employee motivation and providing resources. This can be accomplished through applying the managerial implications for each behavioural intention category summarized in Table 7.

Table 7. Managerial Implications to Influence Behavioural Intentions.

Behavioural Intention Category	Managerial Implications
Perceived Valued Outcomes	<p>1) Promote value-enhancing performance attributes through sharing the success story of the 'open' question asked on the discussion board and the innovative ideas acquired from the experience. This highlights the tool's value to others as well as aligns the tool with the 'openness' objective of enabling the organizational culture's embracement of informal knowledge sharing. This can also reinforce the transformation from a closed to open culture.</p> <p>2) Promote the value of the user profile as an expert identification tool and its ability to build social capital which increases access to knowledge resources which improves work performance.</p> <p>3) Promote valued-added content within the wiki beyond terms and encourage users to edit and comment on other's pages to enhance feedback visibility.</p>
Perceived Effort	<p>1) Provide training in the tools use as a way of reducing perceived effort through overcoming intuitiveness issues (Paroutis and Al Saleh 2009).</p> <p>2) Promote the strengths of the new tools for their relative advantage over tools with which users have a history of comfortable use.</p>
Perceived Social Influence	<p>1) Stress key expert adoption through a community manager and evangelizers (Leistner 2012) which assist in building tool interactivity by spreading positive word of mouth regarding achieved valued outcomes to attain critical mass.</p>
Perceived Support	<p>1) Encourage an open organizational culture which values trust, willingness to help others, and supports the principle that everyone has valuable knowledge to share to reduce the fear of public posting.</p> <p>2) Communicate the clear purpose of each tool by highlighting 'what is</p>

	<p>worth sharing' (Karlsen and Gottschalk 2004) through simple guidelines which evolve to fit the tools' valued outcomes: user profile (e.g. importance of sharing one's competences to help find others and be found); wiki (e.g. encourage people to edit other's wiki pages).</p> <p>3) Implement a technologist role within the ESSP to translate user requirements, as well as develop, tune, integrate and support the tools (Leistner 2012: 76). This includes upgrading the software to contemporary standards including push notifications and mobile applications as well as linking user profiles to alternative tools (e.g. LinkedIn and SAP HR) which automatically update information, reducing maintenance effort and redundancy.</p>
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These managerial implications are best summarized in the following quote from one interviewee:

"These tools need to have a clear purpose and when that is communicated well, then I know that when I need what they provide, then I will go there....they [management] should try really to define the purpose that sticks out from all these other channels and then be clear to communicate them so that they become tools within the tool box. That means that I don't have to follow them frequently but when I have a need, I know that those will add value." (Manager-level, Voluntary user, non-user of the wiki and user profile, speaking in general about all social software tools)

6.3 Limitations of the Study

Within the context of a Master's thesis, limitations of the study occur at a theoretical level regarding the scope of the literature reviewed as well as at a methodological level concerning the empirical process of collecting and analyzing the data available.

With reference to the literature reviewed, the primary limitation mirrors that described by Paroutis and Al Saleh (2009: 52) wherein "the study assumes that knowledge sharing using Web 2.0 is an effective means to collaborate." However, a comparison of knowledge sharing behaviours online compared to in-person was not conducted. It follows that the assumption is made that usage of the three ESSP tools is synonymous with informal cross-border knowledge sharing in this study; despite the channel effectiveness not being explicitly compared to alternative methods. Furthermore, the ESSP of focus, SharePoint 2010, has been criticized as not being ideal for social

computing as it is more oriented towards content management capabilities with a minor role played by social software tools resulting in a more structured ESSP (Shepley 2011). As a comparison of differing ESSP technologies' ability to facilitate knowledge sharing was not conducted in the literature review, this study's focal tool influencing determinants may not be representative of knowledge worker perceptions towards all ESSPs and their tools. However, at a theoretical level regarding the categories identified, the integrative framework should still be supported.

The theoretical limits give rise to the methodological limitations of the study in terms of generalisability as the integrative framework was developed from only analyzing the phenomenon within the context of one large manufacturing case company using the three tools of user profiles, a wiki and a discussion board. Additionally, as this study's interviewees were all from Finland or Europe, limited insights were available into the influence of cultural distance or language. This could have significant explanatory power for the intentions and behaviours of employee located in a more diversely geographically distributed selection of subsidiaries common to the MNC context.

The integrative framework was also develop through only analyzing the self-reported behavioural intention and usage data collected from qualitative interviews with nine knowledge workers. This touches on a limitation noted by Wang and Noe (2010: 126) in that most quantitative studies on knowledge sharing also only measure either willingness (re: intention) or self-reported sharing behaviours. If more time and financial resources had been available, and access granted to the raw contributions within the ESSP, the self-reported qualitative data could have been substantiated by quantitative data gathered to analyze the volume and knowledge sharing characteristics of the interviewees' interactions and contributions within the tools. This limitation highlights one possible area for further research.

6.4 Directions for Further Research

There are numerous directions for future research which can supplement the findings of this study to advance the field of knowledge management's understanding of

technological mechanisms. As suggested in the discussion section, one area of future research is to return to the data collected in this study to conduct a detailed template analysis enabling weights to be assigned to each factor with the aim of determining the degree to which hierarchical relationships exist within each category and between them (King 2004).

Future studies can also further these findings via explanatory research where the deductive approach can be utilized to empirically test and validate the integrative framework quantitatively. Testing of the framework could be conducted by adapting Venkatesh et al.'s (2003) UTAUT questions for the purpose of informal knowledge sharing to explain adoption of an ESSP's tools. For example, each factor could be operationalized similar to in the research of Dapper (2007: 1) which demonstrated "that UTAUT can be used to estimate the user acceptance of Enterprise 2.0." This framework's factors could then be tested with a questionnaire survey administered to a random sample of the case company's population of knowledge workers. This would enable claims to be made as to whether the three groups of influencing factors that predict tool usage can be generalized across the organizations total user population.

Another interesting area of study could be to further analyze when and why ESSP tool users go 'offline' to share their knowledge as briefly examined within the discussion section of this study. This research could also answer Wang and Noe's (2010) call for more research to compare the influential factors and characteristics of knowledge sharing activities within electronic (re: social software) tools compared to the primary influential factors and outcomes of sharing offline.

Finally, other researchers can heed the call for replication regarding conducting additional research which applies this study's integrative framework to other MNC contexts using a variety of ESSPs and their numerous tools available to knowledge workers. These future research streams could result in management acquiring a significantly more detailed understanding of the influencing factors which can be manipulated to achieve intensified knowledge worker behavioural intention and usage of an ESSP and its tools for informal cross-border knowledge sharing.

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APPENDIX

Semi-Structured Interview Guide and Questions

Interview Guide

Interview Date and time:

Interview Place:

Name of the interviewee:

Nationality:

Mother tongue and English language skills:

Job position/title:

Location of office:

Years with the company / in current role:

Interview Information Statement

Dear Interviewee (_____),

Thank you for considering the request for access and for agreeing to the interview meeting. The topic of my research is in understanding the role and methods of informal cross-border communication in multinational companies. I am specifically interested in hearing about your opinions, attitudes, and experiences with contributing to informal cross-border knowledge sharing at the case company. By knowledge sharing, you should think of this in terms of: “contributing”, “collaborating”, “communicating”, “sharing ideas”, “exchanging experiences”, “problem solving”, “answering or asking questions”, or “providing or receiving advice”.

I would like to hear about your personal experiences through providing practical examples as well when helpful. Please, try to be honest while answering the questions, the information regarding your identity will be kept confidential and anonymous and nothing would be attributed to you without first seeking and obtaining your permission. You can decide to not answer any question and you can have the interview stopped if you wish. The data collected will only be used for the purpose of this Master’s thesis research. I would like to confirm that I have your permission to record the interview electronically. To reiterate, the interview should last 45minutes to 1hour but could possibly last longer.

Best regards,

Daniel Lucas

Interview Questions

Theme I: Background & Interviewee's Knowledge Perceptions

1. To begin, please explain briefly a bit about the background of your role at the case company.
2. Do you perceive your role as that of a knowledge worker, someone who works with ideas and problem solving in an unstructured way, or that your role is primarily completing process-driven tasks, or a third type of role? And why?
3. Can you tell me about the degree to which your role involves informally communicating and collaborating across borders (re: informal referring to the interaction being work related but outside of formal work groups)?
 - a. Probe: What have you found works well?
 - b. Probe: What have you found that doesn't work as well or is a challenge?
 - c. Probe: What improvements do you think could be made to enhance your ability to informally communicate and collaborate across borders?
4. To what degree do you perceive the case company as a company which works mainly with ideas and problem solving in an unstructured way (re: knowledge intensive) compared to primarily focused on completing process-driven tasks? And why?
 - a. Probe: What are your thoughts on the case company's knowledge sharing culture and its approach to communication and collaboration across borders?

Theme II: Interviewee Use of the case company's Enterprise Social Software Platform (ESSP) Tools & Social Interaction Relationships

5. Do you use the case company's enterprise social software platform (ESSP), and if so, which tools and for what purposes/objectives?

Focus Statement: For the remainder of the interview we are going to focus on informal cross-border use of the case company's ESSP for communication and collaboration. This relates specifically to the following informal tools: your user profile, the wiki, and the discussion board.

6. Regarding your user profile: If you use this tool, can you please tell me about your experiences using it?
 - a. Probe: What do you feel influences you to fill out, update information, or use the tools within your own profile?
 - b. Probe: Regarding your “colleagues” (re: employees to whom an individual is connected), what was the process in adding these specific people?
 - c. Probe: Do you feel that the information displayed within your user profile tools influences your contributions in the other two enterprise social software platform tools (re: the wiki and the discussion board)?
 - d. Probe: Do you look at other employee’s user profiles, and if so, why (re: in what circumstance or for what purpose)?
7. Regarding the wiki: If you have experience with this tool, can you please tell me about your experiences using it?
 - a. Probe: Do you use the tool more for finding knowledge or for contributing knowledge?
 - b. Probe: What do you feel influences you to make contributions (re: creating a new page or editing existing content) in the wiki?
 - c. Probe: What type of knowledge is being shared with this tool?
 - d. Probe: What were your desired outcomes from the tool and were they achieved?
8. Regarding the discussion board: If you have experience with this tool, can you please tell me about your experiences using it?
 - a. Probe: Do you use the tool more for asking questions, answering others questions, or finding knowledge?
 - b. Probe: What do you feel influences you to make contributions (re: asking questions or answering them) in the discussion board?
 - c. Probe: What type of knowledge is being shared with this tool?
 - d. Probe: What were your desired outcomes from the tool and were they achieved?

9. When using the case company's ESSP to informally communicate and collaborate across borders (re: using the user profile, the wiki and the discussion board), with whom do you typically interact?
 - a. Probe: Is there a particular reason that you interact with certain employees?
 - b. Probe: Are those who you interact with knowledge workers or are they process-driven task roles and would you say that they are more similar or different from yourself?
10. What do you feel your manager's perceptions are regarding your use of the case company's ESSP's tools?
 - a. Probe: What do you feel their perception is of your role's requirement for informal knowledge sharing across borders via the case company's ESSP?
 - b. Probe: To what degree does your manager discuss your utilization of the case company's ESSP's tools, either in person or through comments in the platform?
 - c. Probe: What do you feel their attitudes are towards contributing to the case company's ESSP given their own utilization of the tools?

Theme III: Motivation & Barriers to the Use of the case company's ESSP's Tools

Focus Statement: The last set of questions are regarding your personal experiences and attitudes specifically regarding informally communicating and collaborating across borders using the aforementioned case company's ESSP's tools (re: using the user profile, the wiki and the discussion board).

11. What has been your overall experience with these tools within the case company's ESSP for this specific purpose?
 - a. Probe: Have your prior experiences influenced your contributions to the various tools, and if so, how?
 - b. Probe: What do you feel is the value, if any, associated each of these three tools, for yourself and for the case company?
12. What positively influences (re: motivates) you to contribute to the tools provided in the case company's ESSP?

- a. Probe: What works well with these tools?
 - b. Probe: Do you derive benefits from informally communicating and collaborating via the case company's ESSP, and if so, what are they?
 - c. Probe: Please describe a positive experience (re: a short anecdote) and the outcomes successfully achieved through using the case company's ESSP for informal cross border knowledge sharing.
13. What factors reduce your desire and/or ability (re: inhibitors) to contribute to the tools provided in the case company's ESSP?
- a. Probe: What doesn't work well with these tools?
 - b. Probe: What are difficulties you feel are directly associated with the specific case company's ESSP's tools discussed?
 - c. Probe: Please describe an example of an issue or problem (re: negative experiences) that you had when contributing via the case company's ESSP and the outcomes that occurred.
 - d. Probe: What factors do you feel may limit an employees' desire (re: willingness) and/or ability (re: behaviour) to contribute more heavily to the case company's ESSP's tools discussed?
14. How would you improve the three focal case company's ESSP's tools discussed in order to enhance contributions from all the case company's knowledge workers?

Conclude the interview by asking if the respondent is interested in making any other comments and if there is anything that's been missed.

If you are interested, an executive summary of the results can be provided (Y/N).

Thank you very much for your time.

The interviewer's impression of how it went and immediate notes: